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ABSTRACT

This study investigated prediction of teacher behavior by attitudinal variables and was based upon a theory currently being researched in social psychology. The sample of 103 teachers of grades K-6, representing about half of the elementary schools in a large public school system, had attended a summer social studies institute which stressed the use of inquiry strategies for value analysis and clarification. Teachers completed a questionnaire and taped three 15-minute discussions with small groups. A questionnaire and behavior coding scheme were developed to measure attitudes and behavior in relation to training program objectives. Analysis of the results, using multiple regression and canonical correlation, yielded the following conclusions: 1) The best predictor of a single act behavior is its corresponding behavioral intention. 2) A general attitude measure can predict a multiple act criterion better than a single act criterion. 3) Perceived difficulty of performing a behavior, while consistently negatively correlated with behavior, is not highly related to overt behavior. 4) Level of commitment does not improve behavioral prediction. Prediction of single questioning behaviors by other coded behaviors was also investigated and discussed in the context of the conceptual relationship of coded behaviors to existing taxonomies. An extensive bibliography and appendixes are included. (Author)

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Final Report

Project No. 2-D-019
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TEACHER "ATTITUDES" VS. TEACHER BEHAVIOR

Marlene Mitchell

Nova University

Fort Lauderdale, Florida

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LIST OF ABBREVIATIONS AND SYMBOLS

1. Aact: Attitude (affect) toward performing a specific behavior in a given situation.
2. AIHPG: Alternate inferences, hypotheses, predictions and generalizations.
3. A_o: Overall favorableness to training program objectives; a general attitude measure.
4. B: A specific behavior.
5. BI: Intention (Behavioral Intention) to perform a specific behavior in a given situation.
6. ΣBI: Overall commitment to training program objectives; a general intention measure.
7. CCC: Compare, contrast, classify and relate.
8. D: Perceived difficulty of performing a specific behavior in a given situation.
9. EAVJ: Evaluation and value judgment.
10. ETSHAP: Evidence to support hypotheses and predictions.
11. ETSG: Evidence to support generalizations.
12. ETSI: Evidence to support inferences.
13. GBOI: Generalizations based on inferences.
14. HAP: Hypotheses and predictions.
15. IFD: Inferences from units of data.
16. MAC: Multiple act criterion.
17. NB: Normative beliefs about a specific behavior in a given situation; i.e., perception of supervisors' expectations for a specific behavior in a given situation.
18. OOUD: Observations of units of data.
19. U: Perceived utility of a specific behavior for attaining objectives in a given situation.

CHAPTER ONE

Background and Statement of the Problem

Introduction

Educators and parents alike have long been concerned with how children feel about the activities in which they engage in the classroom. The attitudes a child develops when he, for example, learns to read or studies "social studies" are considered to be important to his actual performance. First, it is reasoned, that the likelihood of maintaining a given level of performance may be reduced if positive attitudes do not co-exist with desirable behavior. Second, our society expects consistency in attitudes and performance from all its members, adults as well as children. An expectation for attitude-behavior consistency brings predictability to human relationships.

The same degree of concern has not extended to teacher behavior and how the teacher feels about what he is expected to do in the classroom. Frequently teacher workshops begin (or end, or both) with some type of questionnaire designed to elicit verbal responses to some aspects of the workshop. Since training programs are usually designed to improve some facet of teacher competency, there is an implicit assumption that a relationship exists between how the teacher responds on the questionnaire and what he is going to do in the classroom as a result of the training experience. The existence of inservice training programs in school systems throughout the country suggests that teacher behavior in the classroom is assumed to affect the education of children and further, that training programs help to develop desirable attitudes which translate into desirable classroom behavior. Although the teacher is but one component of the educational environment, the role of the teacher is an important factor in determining the process of education for children (Medley and Mitzel, 1963).

That the role of the teacher is important is supported by the research of Anderson and his associates (1939, 1945, 1946) who concluded that classroom climate was primarily determined by the teacher's patterns of integrative-dominative behavior. In other words, pupils in classrooms where integrative behavior was stressed tended to display more self-direction. Conversely, pupils in primarily dominative environments tended to be more conforming and dependent. Cogan's (1958) investigations into pupils' perceptions of teacher competence further support Anderson's work on the importance of the teacher in the classroom. He found a significant correlation between a teacher's perceived inclusiveness (analogous to Anderson's integrative) and pupils' productivity scores on two criterion measures.

Early efforts to investigate teacher competence were concerned with teacher effectiveness. Domas and Teideman (1950) compiled an annotated bibliography of over 1,000 studies related to teacher competence. Lack of both clearly defined criteria of teacher effectiveness and objective measures of teacher behavior seem to have pervaded many of these investigations.

Major programs in teacher education which have been undertaken since 1960 have attempted to improve both the pre-service and inservice education of teachers by specifying criteria for teacher competence. The following statement by Verduin (1967, p. 3) reflects the thinking of teacher educators at that time:

> The study of education and the careful rethinking about the preparation of teachers are perhaps at their highest point in history and they should remain under critical study for some time...When thinking about a...(teacher education) program, one must begin by thinking about the kind of product he desires.

Several events since 1960 have helped to stimulate intense interest in teacher education. Two controversial reports were published, The Education of American Teachers (Conant, 1963) and the Kerner Report (1964). Both were concerned with the efficacy of pre-service training, the necessity for the continuing education of teachers beyond the university environment and the lack of congruence between a teacher's pre-service training and his performance in the classroom. Large funding agencies contributed to the growth and development of improved teacher education during this period: the Carnegie Foundation, the Fund for the Advancement of Education, the Ford Foundation, the United States Office of Education (USOE), etc. (Denemark and MacDonald, 1967). For example, the USOE, in 1967, issued a request for proposals to amalgamate theoretical, substantive and skill orientations in an elementary teacher education program to begin during undergraduate training and continue through the inservice experience. Nine[1] of the eighty proposals submitted were funded. The nine models varied in emphasis from a performance-based curriculum (University of Massachusetts) to a competency-based curriculum with concern for personal relevancy of the program (Northwest Regional Educational Laboratories) to a clinical approach within a behavioral science curriculum (University of Michigan). All nine models have at least six components in common: inservice training is included as part of the total program; behavioral objectives are specified; training in decision-making is emphasized; guided self-analysis and feedback is utilized; and the use of research is stressed (particularly in the teaching-learning process). All nine focus on modification of teacher behavior specifically and less explicitly on modification of teacher attitudes.

While for many years emphasis had been solely on the art of teaching, or the uniqueness attributable to a particular teacher (his preferences, his attitudes, etc.), the 1960's "witnessed this imbalance in (the) process of redress" (Bush, 1967, p. 35). During this "process of redress," most researchers in teacher education investigated teacher behavior, rather than teacher attitudes and behavior.

The importance of considering teacher attitudes as well as behavior is stressed by Berliner (1969), Rubin (1971) and Allen (1971). Berliner (1969) suggests that the measurement of pre-post treatment differences in teacher behavior in a workshop may not be sufficient to indicate whether, in fact, learnings are transferred from training to classroom, or whether, in fact, the new behaviors are valued components of a repertoire of behaviors. Rubin (1971) refers to the teacher's sense of motivation and commitment. He suggests that:

> How the teacher feels about something, how strongly, and in what order of importance, are tightly interwoven with his view of the educational process...The desire to perform at an optimum level is rarely stimulated when one does not believe in the worth of what he does. (p. 251-252)

According to Allen (1971), "personological" skills, how the teacher feels about himself and the behaviors he is expected to use in the classroom, are as important as performance skills.

A needed area of research in teacher education, which would be an effective contribution to designing and evaluating a program of education, is the relationship of attitudes and behavior within one conceptual framework. Specifically, one can investigate the relationship between an individual teacher's attitudes and behavior as they relate to the specified objectives of a training program. Rich possibilities exist for the application of knowledge of such relationships, if they are found to exist, to teacher training programs, both pre-service and inservice. The present study is an investigation of the relationship between teacher "attitudes" and teacher behavior. The purpose of the study is two-fold:

(1) To develop an attitudinal/behavior model, independent of subject matter, which might serve as a general purpose tool for teacher training program evaluation; and

(2) To test the model by following up a training program for teachers.

Significance of the Study

Many attempts have been made to find a consistent relationship between verbal attitudes and behavior. As early as 1934, LaPiere reported differences in the expressed attitudes of hotel personnel and their observed behavior toward Orientals. In spite of evidence to the contrary (e.g., LaPiere, 1934; Kutner, Wilkins and Yarrow, 1952; Berg, 1966; Bray, 1950; Seibel, 1967), investigators have assumed a close relationship between attitudes and behavior. "They do this, first, because it is a reasonable assumption to make, and second, because it lends an air of practical importance to the laboratory study of attitudes" (Keisler, 1971, p. 6). Frequently, changes in attitudes are assessed in training programs and the assumption is made that if attitudes change in the desired direction, there is also a desired change in behavior (Deutscher, 1966).

> In the past several years, questions such as (1) whether attitudes predict behavior and (2) whether changing attitudes lead to changes in behavior, have again begun to attract a considerable amount of attention. While these questions have been raised periodically over the past fifty years, it is only recently that large numbers of investigators have answered them in the negative. (Fishbein, 1972, p. 1)

Research on the relationship of attitudes and behavior has been reviewed by Wicker (1969). In summarizing the findings of more than thirty selected studies, Wicker concluded that attitudes seem to be only slightly or not at all related to behavior. In fact, no close relationships were obtained. Correlation coefficients between the verbal and behavior measures were seldom above .30.

Although social psychologists have recently demonstrated renewed interest in attitudes and behavior, there have been few attempts in teacher education to understand the relationship of attitudes to behavior. Frequently, the presence of certain attitudes is inferred to explain teacher behavior. However, there is a dearth of systematic research in this area. Research which can demonstrate that teacher behavior after a training program can be highly predicted by attitude measures will have great utility for teacher trainers. If a high relationship can be shown to exist, it may be possible to select teachers for training for specific objectives.

Background of the Problem

Most investigations of teacher behavior have been concerned with two dimensions: (1) establishing relationships between teacher behavior and characteristics of pupils or teachers,[2] and (2) assessing teacher behavior change as the result of a training experience.[3] Few have sought to relate teacher behavior to teacher attitudes. For example, an examination of Dissertation Abstracts from July, 1967 to March, 1971, yields only twenty studies of the relationship of attitudes to behavior; only eight of these in education, and of these eight, six are in teacher education (Kidd, 1970; Baker, 1969; Vickery, 1967; Barnes, 1970; Beck, 1970; McCall, 1969).[4] Only Vickery (1967) utilized an attitude-behavior theory framework to house the investigation. His study showed that more dogmatic teachers resist evidence that their attitudes and behavior are inconsistent. Attitudes and behavior in Vickery's study were measured by three instruments designed by Brown (1968) to assess agreement-disagreement with Dewey's philosophy of education. The value of the three instruments is that they permit comparable measurements of attitude towards certain teaching behaviors (Teacher Practices Inventory), personal beliefs (Personal Beliefs Inventory) and classroom practices

(Teacher Practices Observation Record). Vickery found that the level of consistency obtained among the three instruments was influenced more by change in behavior than by change in attitudes.

Baker (1969) also attempted to use comparable measurements in a study of teacher trainees' attitudes toward inquiry, behavioral intention toward performing inquiry behaviors and verbal behaviors. However, while the investigator attempted to use parallel stimuli of behavioral intention (a modified form of Samph's Ideal Teacher Scale) and verbal behavior (a modified form of Flander's Interaction Analysis, coded on categories similar to Samph's), attitudes toward inquiry were measured by the Minnesota Teacher Attitude Inventory. Before a methods course in social studies, there was a discrepancy between behavioral intention and behavior. However, behavioral intentions were toward inquiry and behavior was away from inquiry at the pretest. On the post-test, attitudes showed no change, and intentions and behavior were more consistent. Since the MTAI does not tap parallel dimensions of the intention and behavior measures, Baker's conclusion that behaviors can change without corresponding change in attitudes seems unwarranted.

Both Vickery (1967) and Baker (1970) attempted to use parallel stimuli in the measurement of attitudes and behavior. The following studies in teacher education suggest that how a teacher feels about certain teaching behaviors may influence his classroom behavior. However, this relationship is implied and is not directly tested.

Zimmerman (1970), in a study of Follow Through teachers using the Tuscon Follow Through Model, found higher (though not significantly higher) levels of teacher praise among teachers who had had Follow Through training than among those who had not. He concluded that Follow Through teachers "are implementing their attitudes by consonant educational behaviors" (p. 92). This statement was inferred from data from a study by Rosenthal et al. (1970) which used the same sample to assess differences in attitudes between Follow Through and other teachers. However, Zimmerman did not statistically test for a relationship between the two measures of attitude and behavior.

Andrews (1970) trained a group of teachers to use behavior modification techniques and found the course effective in producing more frequent use of operant techniques. Attitudes toward the techniques were not directly measured. However, "teachers involved in the program were volunteers and, as a result, probably had some motivation to implement treatment programs based on behavioral principles" (p. 41). In other words, teachers may have had initial positive attitudes. Andrews' study suggests that positive attitudes toward the objectives of training may, in fact, indicate that certain teachers may be more trainable than other teachers. Possibly, then, pre-training assessment of attitudes toward training objectives will permit grouping teachers for specific objectives during the training sequence. For example, Carline's (1970) study supported the possibility of "training in" desirable teaching behaviors during a training program, but did not support the "training out" of undesirable behaviors. Since he did not investigate teachers' attitudes, we can merely conjecture that, in fact, teachers did not perceive the behaviors to be undesirable. Had Carline assessed attitudes prior to the training program, a means for grouping teachers for differentiated training during the program might have been obtained.

That a relationship between a teacher's attitudes and classroom behavior is implied in the above studies suggests that if such a relationship were shown to exist, prediction of teacher behavior might be possible. Seibel (1967) investigated the prediction of eight teacher behaviors which seemed to suggest emotional warmth and ease of interaction between students and teachers. A set of 12 predictors with a hypothesized relationship to the criterion behaviors included a measure of verbal ability,[5] nine attitude measures,[6] the number of previous teaching experiences with children and the student teaching grade. None of the correlations between the predictors and the criterion behaviors was above .29. Previous teaching experience and practice teaching grade were the best predictors. The proportion of variance accounted for by a linear composite of the predictors ranged from only 10% to 25%. Since the attitude measures contributed least to the prediction of behavior, it is quite likely that the attitude measures used did not tap the same universe as did the behavior measures. Seibel's approach to the prediction of behavior, using multiple predictors, might have been more valid if he had attempted to make the stimuli similar in the measurement of attitudes and behaviors.

Summary and Statement of the Problem

Few studies in teacher education could be located which dealt with the attitude-behavior link, and most of those which have been cited have been atheoretical with regard to a conceptualization of attitude and behavior. Several studies imply attitude-behavior congruence, but measure only behavior. Studies which attempt to make the stimulus the same in the measurement of both attitudes and behavior seem to suggest the most viable approach to the prediction of teacher behavior.

The purpose of this study is two-fold. First, it is an attempt to develop an attitudinal/behavior model, independent of subject matter which might serve as a general purpose tool for teacher training program evaluation. Emphasis here will be given to the development and rationale for a theoretical position relating to attitudes and behavior currently held in social psychology. It will be shown through a search of the literature that this theoretical position is the only one to have generated investigations of the attitude-behavior link, and further, to have empirically demonstrated its efficiency in the prediction of behavior.

The second aspect of this study involves the testing of the model by following up a training program for teachers. This study represents an effort to apply a theory (and empirical data generated by the theory) which is currently being refined and tested in social psychology to the field of education. Since tests of the theory have a history of successful replication among college students, it is the objective of this investigation to demonstrate its relevance and transferability to a "real world" setting, where the results might have practical as well as theoretical utility. Also, the addition to the model of relevant constructs will be investigated. Therefore, this study will test the attitudinal/behavior model with a sample of teachers who have attended an inservice training program by obtaining the behavior measures in the natural setting of the classroom.

NOTES: CHAPTER ONE

1. For a concise description of eight of the nine models, see Journal of Research and Development in Education, 1969, 2 (3); for a summary of all nine models see "A Short Summary of Ten Model Teacher Education Programs" by J. Klatt and W. LeBaron, 1969.

2. c.f., for example, Flanders (1960, 1962, 1965a, 1965b); Goldstein (1970); Solomon (1966); Solomon et al. (1963); Ryans (1960).

3. c.f., for example, Allen and Ryan (1969); Orme (1966); Lohman, et al., (1967); Smith (1962); Wood, et al. (1969); Borg (1969); Flanders (1962, 1963a, 1963b, 1963c).

4. The criteria used for the selection of the 20 studies were that they: (1) employ direct observation of overt behavior, not the retrospective report of others about the behavior; (2) statistically test for an attitude-behavior relationship, and; (3) operationally define at lease one variable as an attitude measure and another as a measure of overt behavior.

5. Miller Analogies Test score.

6. F Scale; Minnesota Multiphasic Personality Inventory (Paranoia Scale); MMPI (Psychasthenia Scale); MMPI (Social Introversion-Extroversion Scale); Wickman Schedule-Number of "no consequence" Pupil Misbehaviors; Wickman Schedule-Number of "extremely grave consequence" Pupil Misbehaviors; Change in MTAI score, pre-post student teaching; Change in F Scale, pre-post student teaching.

CHAPTER TWO

Review of the Literature and Statement of Research Questions

Attitude Theories

The approach to the investigation of the relationship between attitudes and behavior in this study represents a departure from the traditional view. Therefore, traditional attitude theories will be presented and critiqued and will be followed by a discussion of the attitude/behavior theoretical position that was the foundation of this study. Discussion of the theory is presented by way of introduction to the research upon which this study was based.

Consistency Motivational Theory

Consistency is a broad term which may be applied to a group of theories which postulate the operation of an underlying mechanism within the individual which motivates him to seek consistent relationships among elements of his cognitions. Essentially, the theories commonly support the notion that an individual's behavior tends to be the result of attempts to minimize inconsistencies; inconsistencies of attitudes, beliefs and behaviors, or among a set of beliefs or attitudes or behaviors. The drive for consistency may be described as a motive. McGuire (1967a) states that:

> We view consistency as a tendency, a drive, a motive...We feel that clarification of the concept and heuristic suggestions for further research will come more from the motivational analysis of need for consistency than from any other single endeavor. (p. 414-415)

Heider (1946) used the term balance to describe cognitions in which there is reciprocal interaction between attitudes toward persons and toward the events caused by these persons. Stated in another way, a balanced unit exists if attitudes toward both the persons causing the event and the event (i.e., attitudes toward the different elements of the same configuration) are similar. The balance formulation was posited to account for triadic relationships, such as, if person p likes person o and person o likes object x, then p will also like x.

When such a triadic relationship is in balance, it is in a state of equilibrium (Newcomb, 1967). Therefore, a drive for balance may be equated with a strain toward equilibrium. This relationship may also be described as a symmetrical one in which person A is able to calculate B's behavior toward object X.

Newcomb's (1967) extrapolation of Heider's theory, the A-B-X system, postulates that person A's orientation (attitudes, beliefs) toward person B and toward object X are interdependent. That is, in any communicative act A transmits information to B about X (A to B re: X). Thus, it is assumed that within the A-B-X system (in which the three elements are interdependent) a change in any one part of the system will effect change in other parts of the system. A given state of the system exists when an A-B-X interaction occurs. Decisions about the A-B-X relationship at any point in time are determined by both the situational demands for consistency within the A-B-X system and by a psychological drive for balance.

Some of the situational variables which influence the A-B-X system are: (1) the nature of the association between A and B (whether forced or voluntary); (2) the roles prescribed by norms, which may result in differentiated behavior for A and B within the same norm system, i.e., different role requirements for A and B; (3) conflicting norms of different membership groups.

Therefore, communicative acts are a result of changes in the interaction of a person with his environment. Their changes may be actual or perceived. Newcomb (1967) contends that observation of the relationships within a system at any point in time permits prediction both of subsequent communicative acts and changes in attributes of persons involved in the system.

The work of Osgood and Tannenbaum (1955) to develop more objective methods for measuring meaning helped them to formulate the congruity principle. The congruity principle states that changes in evaluation are always toward increased congruity with the existing frame of reference.

The essential element is the referrent for the attitude. For example, we might like to eat pork (the object) but may not like to eat in a Chinese restaurant (the referrent). Therefore, "eating pork in a Chinese restaurant" would represent an incongruity. Incongruity for an individual would be reduced by his changing either the evaluation of the concept or the evaluation of the referrent, in order that he may be able to assign either negative or positive values to both elements. Congruity is a restatement of balance theory in which numbers are assigned to the degree of a person's evaluation of an object. Attitudes exist in only one dimension, evaluative or feeling. Operationally, an attitude in congruity theory is defined by an individual's location on the evaluative dimension with respect to an object.

Dissonance theory represents the last consistency theory to be discussed. Festinger (1957) proposed the term cognitive dissonance to describe the cognitive state in which a person holds two related cognitions (or opinions or beliefs) which are dissonant. The amount of dissonance experienced by an individual depends primarily upon two factors; the ratio of the number of dissonant cognitions to the number of total cognitions about the cognitive elements, and the importance of the cognitive elements to the individual. For example, a person may hold a belief that people are good but believe the behavior of children to be bad. Dissonance between the two cognitions might be reduced by adopting a belief that man is completely good only when he matures. In this case it is important for the individual to believe in the goodness of man. Therefore, dissonance between the two cognitions is reduced by modifying a belief so that complete "goodness" is believed to be possible only at a particular point in man's life. Festinger (1957) maintains that the pressure to reduce dissonance is a basic human drive, even though activity designed for dissonance reduction may not be successful.

All of the theorists cited in this section view balance, or congruity, or consonance as an underlying predisposition of man, and as such as a variable which operates toward consistency in both attitudes and behavior. Although Festinger maintains that cognitions represent reality, Newcomb is the only one of the four to stress the influence of situational variables. In fact, it is his contention that these variables are more important in the study of attitudes than individual differences.

Newcomb's (1967) position has been contradicted by Katz (1960). In an attempt to understand why people have certain attitudes, he contends that the variables of interest are the psychological motivations, not the effects of the external environment. He posits four psychological functions which attitudes perform: (1) the instrumental, adjustive, or utilitarian function; i.e., the attitude depends upon the utility of the attitude object for the person and consistency of punishment and reward associated with the attitude object; (2) the ego-defensive function; i.e., attempts by the person to maintain consonant relationships between his self-perception and impingements of the external environment; (3) the value-expressive function; i.e., satisfaction accrues to the person from expressing attitudes appropriate to his personal values and self-concept; and, (4) the knowledge function, based upon the person's need to provide structure and meaning to his cognitions.

Katz (1960) suggests the existence of more than one underlying need, and although one attitude may be predominantly tied to one motivation, others may satisfy more than one need for the person. In other words, consistency (e.g., of self-perception of attitudes and values) or dissonance reduction, to use Festinger's (1957) term, is only part of the motivating function attitudes perform. Other functions (needs, drives, motivations) can be attributed to the utility (c.f., Rotter, 1966) of an attitude for goal attainment and to the provision of order (or meaning, to use Osgood and Tannenbaum's (1955) term) to the person's cognitions.

Katz (1960) has incorporated several consistency theories into one. In addition, he suggests that the cognitive organization of attitudes, beliefs, must be investigated as a separate dimension. He also indicates that the relation of attitudes to action or overt behavior is not clearly defined in most theories. Katz and Stotland (1959) refer to the action component of attitudes. Himmelstrand (1960) distinguishes between attitudes where affect is linked with verbal expression and attitudes in which affect is associated with the behavior and the referrents of the attitude. In other words, affect toward the behavior should be considered, as well as affect toward the object.

Neither the inter-relationship of the many elements of attitudes, nor the relationship of attitudes to behavior is predicted by any of the theories. However, each suggests factors which may serve as influences of attitudes, although the same underlying variables are seen to influence behavior as well as attitudes. These factors may be tolerance for inconsistent relationships (Festinger, 1957; Heider, 1946; Osgood and Tannenbaum, 1955; Katz, 1960), self perception (Katz, 1960; Festinger, 1957), beliefs (Katz, 1960), values (Katz, 1960), group membership norms (Newcomb, 1967), role requirements (Newcomb, 1967), personal differences (Katz, 1960), tolerance for ambiguous structure (Katz, 1960), and utility (Katz, 1960).

Behavior-Learning Theory

The term "behavior-learning theory" may be ascribed to a group of theories which postulate a different mediating mechanism than consistency theories. The mediator is not a drive for consistency, but rather learned habits, cognitions and feelings, combined with current stimulus conditions. Therefore, behavior is determined by three components, cognitions (beliefs), emotions (affect) and habits (specific organizations of activity) in combination with the stimuli in the current external environment. The emphasis, then, is on environmental conditions, not on intra-psychological states.

Bem (1968) rejects attitude conceptions which imply that an attitude provides internal stimuli which are accessible only to the person. In fact, he says that many self-report statements which seem to be under the discriminative control of internal stimuli may, in fact, be controlled by the socializing events of the external community. Bem (1968) views attitudes as self-descriptions and further states that a person's judgment about his own attitudes are, in many instances, the same that other persons might make after observing a sample of his behavior. In other words, Bem would infer attitudes from behavior. However, Bem is unclear as to how this sequence operates. One thing does seem clear, however. If primary interest is in behavior, then research should devolve upon factors, including attitudes, which determine behavior. If, on the other hand, attitudes are the prime concern, then utilization of attitude as the dependent variable is justified (Wicker, 1969).

Fishbein (1967a) defines attitude as unidimensional, as do Osgood, Suci and Tannenbaum (1957). Attitude is only affect toward an object, a behavior, a concept, etc. Therefore, any attitude may have positive, negative or neutral value for an individual. Further, attitude, while it is an underlying predisposition to respond in a favorable or unfavorable way, is specified as a learned mediating evaluative response, affected by the individual's interaction with his environment. The set of responses associated with the attitude object (or stimulus concept) is the belief system which may be viewed as a habit-family-hierarchy of responses.

According to Fishbein (1967b), beliefs serve as determinants or indicants of an individual's attitude. Thus, an individual's attitude toward an object (e.g., a Negro) is a function of his salient beliefs about the class of objects (e.g., Negroes). Therefore, two people may hold the same belief toward Negroes in general and yet have different attitudes toward a particular Negro. Fishbein (1967b) has expressed this relationship algebraically:

$$A_o = \sum_{1}^{N} B_i a_i$$

where:

A_o = the attitude toward object o

B_i = the strength of belief i about o, that is, the "probability" or "improbability" that o is associated with some other concept x_i

a_i = the evaluative aspect of B_i, that is, the evaluation of x_i

N = the number of beliefs about o, that is, the number of responses in the individual's habit-family-hierarchy

Other investigators have suggested a similar relationship (e.g., Rosenberg, 1956, 1960). Rosenberg would include "the perceived instrumentality of the attitude object" (in place of Fishbein's B_i) and the "valued importance" (in place of Fishbein's a_i) or intensity of affect as factors related to affect toward an attitude object.

According to Fishbein (1967c) an investigation of attitudes and behavior should be concerned with behavioral intentions as well as with attitudes, beliefs and behavior. Behavioral intention represents the concept closest to behavior. Yet, one could still not assume that behavior would be accurately predicted.

In an early version of the theory Fishbein (1967c) combined beliefs, attitudes and behavioral intentions in the following formulation for the prediction of behavioral intention (thus, behavior), which is based on Dulany's (1961, 1968) theory of propositional control.

According to Dulany, there are two classes of variables which affect behavior, the perceived consequences of a behavior and the person's evaluation of the consequences, and the perceived expectations for the behavior and the person's motivation to comply with these expectations. Dulany's theory has been adapted by Fishbein (1967c) and expressed in the following form:

$$B \approx BI = (Aact)\ w_o + (NB_p)(Mc_p)w_1 + (NB_s)(Mc_s)w_2$$

where:

B = Overt behavior

BI = Behavioral intention

$Aact$ = Attitude toward the behavior in a given situation

NB_p = Personal normative beliefs in a given situation

NB_s = Social normative beliefs in a given situation

Mc_p, Mc_s = Motivation to comply with norms

W_o, W_1, W_2 = Empirically determined weights

Fishbein's formulation attempts to minimize the attitude, behavior/behavioral intention inconsistency by measuring normative beliefs as well as the attitudes towards specific behaviors (not objects) in a given situation. In other words, beliefs and behavioral intentions are treated as phenomena that are related to attitude (Fishbein, 1967c). Stated in another way, attitudes and beliefs are seen as determinants of behavioral intention, with behavioral intention the immediate antecedent of a specific behavior in a given situation. Unlike traditional theories, Fishbein's conceptualization (1967c, 1972) specifies the relationship that should obtain among attitudes and normative beliefs. Attitudes and beliefs are the basic determinants of behavioral intention (or behavior). Other variables will contribute to the prediction of specific intentions only indirectly, by affecting Aact or the normative components, or the beta weights of either or both. Therefore, if another variable (e.g., a traditional attitude measure) is highly related to BI or B, it should be possible to interpret its function in prediction in terms of its effect on Aact or NB (Mc), or the beta weights.

In summary, Fishbein's theory initially specified three distinct classes of variables which affect behavior or behavioral intention: (1) Attitude towards a behavior; (2) personal and social normative beliefs about the behavior, and; (3) motivation to comply with these norms. Other factors can also influence behavior or behavioral intention by affecting one of the three basic variables.

Correspondence with Fishbein subsequent to the investigator's initiation of this study suggests that very recent research findings somewhat redefine the variables to be included in the formulation. Several modifications of the theory are presented in a paper by Azjen and Fishbein (1971).

First, research utilizing Fishbein's original theory (Fishbein, 1966; Azjen and Fishbein, 1969, 1970, 1972; Carlson, 1968; Azjen, 1971; Fishbein, et al., 1970; Hornik, 1970; Darroch, 1971; De Vries and Azjen, 1971) has shown that one of the variables in the original formulation, personal normative beliefs, is highly correlated with (i.e., is the best predictor of) behavioral intention. Azjen and Fishbein (1971) have subsequently deleted this variable from the model and suggest that "while there is a clear conceptual distinction between personal normative beliefs and behavioral intentions, the high relation between obtained measures of these variables suggests that it may be difficult to develop a satisfactory operationalization of personal normative beliefs" (p. 48).

Second, social normative beliefs which are concerned with the person's perceived expectations of reference groups, may be investigated in relation to several reference groups. In this case, the formulation requires either a normative component for each referrent considered, or a composite of several normative components (a "generalized other").

Third, conceptualization of motivation to comply suggests that this variable may be defined in two ways, either as motivation to comply with a particular referrent under any conditions or as specific to a stated expectation of the referrent. While research in the theory has utilized motivation to comply to specific behaviors, Azjen and Fishbein (1971) currently contend that it should refer to a more general motivational state. Since little research has been done in this area (e.g., Carlson, 1968) and operationalizing the motivation construct may be difficult (Azjen and Fishbein, 1969), this is a needed area of research in the development and testing of the theory. The formulation specifies that the normative component is multiplied by motivation to comply.

In summary, the present version of the theory identifies two determinants of behavioral intention, (and, therefore, of overt behavior) attitude toward the act and normative beliefs (multiplied by Mc). The formulation takes the form of:

$$B \approx BI = [Aact]\ W_o + [NB(Mc)]w_1$$

(Azjen and Fishbein, 1971)

Fishbein's (1967c) emphasis on situational expectations and normative beliefs is supported by Newcomb (1953) and by Himmelstrand (1960). Himmelstrand speaks of anchoring the attitude in its social context, and particularly stresses the influence of components of attitude other than its content. (For example, saliency, intensity, etc.) In other words, how important is a behavior to a person?

Fishbein (1967a, 1967b, 1967c) has made a distinction between attitudes and beliefs and suggested their differential effects upon overt behavior. Attitude is viewed as affect, thereby having the status of one of a number of variables which affect behavior. According to Bem (1967), variables which affect behavior may be termed situational variables, restrictions or reinforcements present in the external environment. It is to these variables that Bem ascribes the major portion of behavior variance.

Summary

Consistency theorists (Heider, 1946; Festinger, 1967; Katz, 1960) assume that overt actions are guided by the same underlying motivations as are attitudes and beliefs. Attitude, or belief (the terminology is inconsistently used) is defined in terms of affect, therefore, without clear separation of concepts, it has not been possible to investigate the relationships between them. Newcomb (1967), while positing a motive for consistency, also stresses the more potent influence of external stimuli, while Katz (1960) postulates that the functions attitudes perform in satisfying certain needs require stress on psychological rather than social phenomena.

Behavior theorists (Bem, 1968; Fishbein, 1967a, 1967c; Himmelstrand, 1960) focus on the effects of the external environment in conditioning attitudes. They reject the notion of an underlying motivation which guides both attitude and behavior. Further, Fishbein defines beliefs and attitudes separately and indicates how they interact with one another. Concern is with overt behavior; therefore, attitudes serve as one of the determinants, rather than as indicants of behavior. Fishbein (1967c) employs motivation to comply to a reference group's expectations as a variable in the prediction of behavioral intention.

In summary, whether or not one expects consistency in the attitude-behavior relationship is contingent upon the conceptual framework with which this relationship is concerned. Consistency theorists assume an underlying mechanism which mediates both an attitude and behavior, therefore, it is understandable why they have been more concerned with attitude formation and change than with both attitude and behavior. If we start with the assumption that a given attitude will affect behavior unless there are social barriers to its expression, then research must always be contained in a black box. However, if we accept as the "true" attitude that which an individual reports, then a man may be held responsible for what he says, as well as what he does (Hyman, 1949). If we assume that a person's perceptions are responsible for his behavior, then it remains for the researcher to specify the factors that contribute to the organization of the perceptual field (Kendler and Kendler, 1949). If we are, in fact, attempting to understand as well as predict behavior, then it is possible to understand inconsistency (Deutsch, 1949).

Empirical Studies of the Attitude-Behavior Relationship

Consistent with the behavior theorists, behavior can be more accurately predicted when other factors are considered in addition to attitudes. While the behaviorists emphasize the importance of situational variables and minimize the mediation of an underlying variable, they do acknowledge the potential influence of personal variables in the prediction of behavior (although these may be subject to environmental change). Therefore, this section reviews studies on the attitude-behavior relationship which consider the influence of other factors. Because there has been little systematic research in this area (Insko and Schopler, 1967; Kutner, et al., 1952), the factors which affect the attitude-behavior relationship will be drawn from: (1) Empirical studies which systematically test for the relationship of other factors; (2) studies which attempt to explain results (post hoc) with other factors, and; (3) suggestions of writers who have theorized about the contributions of various factors.

1. Personal Variables:

   a. Clusters of Attitudes and Beliefs: Clusters of attitudes and beliefs have been found to predict behavior more effectively than a unitary attitude measure. A study by Harvey, et al., (1968) found a significant but low correlation between a teacher's behavior (establishing a classroom atmosphere) and three belief measures. Using Harvey's (1968) conceptual systems as measures of beliefs, Murphy and Brown (1970) investigated the relationship of teaching style and beliefs. When teachers were grouped by their beliefs scores, it was possible to predict a teacher's verbal behavior for 7 out of 9 behaviors. Campbell, et al. (1960), in a public opinion survey during the 1956 elections, asked a national sample to react to four objects (two parties and two candidates) and estimated six attitudes from these data: attitudes toward two candidates, two political parties and party positions on foreign and domestic issues. Attitude toward all six objects yielded a higher correlation with reported voting behavior than did attitude toward elected candidates alone.

Other writers have suggested the necessity of considering many beliefs or attitudes (Insko and Schopler, 1967; Newcomb, Turner and Converse, 1965; Rokeach, 1967; Azjen and Fishbein, 1969). Azjen and Fishbein (1969) demonstrated that the prediction of behavioral intentions was improved when normative beliefs were included with attitude in the predictive equation.

Carlson (1968) found that different behavioral intentions were differentially under the control of normative beliefs or attitudinal influences. Extrapolating to behavior, certain behaviors may be influenced more by normative beliefs than by attitudes and, conversely, certain behaviors may be influenced more by attitudinal considerations than normative ones. Carlson (1968) also found that authoritarian subjects were more influenced by normative beliefs than non-authoritarian subjects.

In a study of attitudes toward breast feeding and the amount of milk produced, Newton and Newton (1950) found that mothers with positive attitudes gave more milk. They cite two studies in which interviews with mothers suggested that attitudes toward labor and toward sex affected their breast feeding attitudes and behavior.

Freeman and Aatov (1960) measured students' attitudes toward cheating in a direct (questions about cheating) and indirect (questions about the honor system) manner and looked at their relationship to cheating behaviors. Since neither measure was able to predict overt behavior the writers suggest that knowledge of attitudes may not be sufficient to predict behavior, although they do not speculate upon other factors that might be considered.

b. Commitment: One finding is that greater consistency between attitude and behavior is obtained if persons are highly committed to the behavior. Levie (1968) hypothesized that consideration of how highly involved persons were in an issue would improve prediction of their behavior toward Negroes, that, in fact, subjects would exhibit overt behaviors congruent with their attitudes only if they were highly committed to an issue. He found only qualitative improvement in the prediction of behavior. Janis and Mann (1968) contend that commitment to a behavior is made at the point when a person decides what to and what not to do. Fishbein's (1967c) behavioral intention may be viewed as a commitment to behavior.

Fendrich (1967) found a higher measure of association between attitude and overt behavior when commitment was assessed prior to attitudes than when attitudes were assessed prior to commitment. However, there was little difference in either treatment condition between the ability of the commitment and attitude measures to predict overt behavior. Keisler (1971) has suggested that commitment may mediate between attitudes and behavior, while Azjen and Fishbein (1971) define behavioral intention (or commitment) as the immediate antecedent of behavior.

c. Ability and Threshold Level: Dollard (1949), Deutsch (1949), Doob (1947) and Wicker (1969) have suggested that the inability of some persons to make an appropriate behavioral or verbal response may contribute to attitude-behavior inconsistency. This supposition might help to clarify Baker's (1970) findings[2] in which teachers' positive inquiry attitudes in a pretest were not accompanied by congruent overt behavior. Perhaps the teachers did not possess sufficient knowledge or skill to translate attitudes into effective behavior. Campbell (1963) contends that the threshold for expressions of attitudes and behavior differs with individuals, and that a person's threshold for expression on a verbal measure may differ from his threshold on a behavior measure. For example, teachers' behavioral threshold may be examined in terms of the perceived difficulty of performing the behavior in a given situation.

d. Utility: One can also assess the utility (Katz, 1960; Rotter, 1966) or perceived instrumentality (Peak, 1955; Rosenberg, 1956; Rosen and Komorita, 1971) of the behavior for attaining objectives. Utility may also be analogous to Fishbein's Aact in which affect toward performing a behavior is a consequence of the individual's expectancy for attaining desired results. In other words, how useful would the person believe the behavior to be in achieving a goal? In particular, if behaviors were recommended by supervisors during a training program, how useful do the teachers consider the behavior to be in achieving training objectives?

2. Situational Factors:

   a. Reference Groups and Norms for Behavior: Many investigations of behavior are concerned with situational factors, particularly reference groups and norms for behavior. In a study designed to investigate the effects of public disclosure of one's opinion and the influence of reference groups, Albrecht (1970) hypothesized that overt action is a product of an individual's attitudes and the interactional characteristics of the behavioral situation in which the individual is called upon to act. However, he did not support his hypothesis that an individual's disclosure of his position to a larger group, perceived to be nonsupportive of the act, would decrease the attitude-behavior consistency.

   Frideres' (1970) study supports Albrecht's (1970) findings. However, when subjects interacted with two other individuals holding the same position, there was almost perfect consistency between attitudes and behavior. The difference may be ascribed to perceived congruence with unspecified "others" as opposed to perceived congruence with specific "others."

   In a study of racial attitudes, Ewens (1969) found a relationship between the degree to which persons are willing to commit themselves to specific civil rights activities and the degree to which they perceived "others" support of their actions. A direct relationship was established between racial attitudes, reference other support and overt behavior.

Kamal (1970) investigated students' attitude toward legalizing marijuana and their subsequent behavior toward the issue. Two intervening variables were postulated; congruency of attitudes with others and "inner-other directedness" (Riesman, 1967). A high positive correlation was found between attitudes and behavior. In addition, when there was perceived support for attitudes, the relationship increased. Conversely, lack of support decreased the relationship. Kamal (1970) found that overt action was predicted more accurately from the situational (attitude congruency) than the personal (inner-other directedness) variable, although there were significant interactions between the situational and personal variables.

Warner (1969), in a study of liberal and conservative persons, found that while liberal subjects behaved in a manner consistent with their attitudes, conservative subjects' inconsistency could be explained by social constraints or perceived normative prescriptions for behavior. Warner (1969) suggests that reference groups perform a normative function for persons whose attitudes are inconsistent with subsequent behavior. In other words, perceptions of norms mediate both the attitude and the behavior.

Mitchell (1971), in an investigation of the prediction of teachers' behavioral intentions, examined the contribution of knowledge of certain situational factors to the prediction of their behavioral intentions. Tenure increased the prediction of behavioral intentions, while the particular workshop attended by a teacher and the grade taught did not. The reference group, teachers of the same grade, seemed to make no difference in this study. Since the population contained only teachers of young children (4-8 years old), it is possible that grade distinctions were not appropriate.

Bernberg (1952) investigated job attitudes and certain job behaviors of employees in an aircraft manufacturing plant. He found no significant relationship between tests of morale (job satisfaction) and either the number of absences, tardiness, or trips to the plant infirmary for reasons other than disease or occupational injury. However, he did find that departments within the factory could be identified by the differences between the attitude and behavior measures, thereby indicating that knowledge of reference group membership may contribute to an understanding of the obtained inconsistency.

Both Linn (1965) and Carr and Roberts (1965) suggest that no relationships were found between attitudes and behavior in their studies because personal factors (such as an attitude) may play a minor role in the prediction of behavior. In both studies, subjects were interviewed (posteriori) and asked about discrepancies between their verbal and behavior measures. Subjects explained their inconsistencies by suggesting that participation in civil rights activities (Carr and Roberts, 1965) or in posing for pictures with Negroes (Linn, 1965) would create concerns regarding the evaluations others (peers, family, hometown, etc.) would make of their behavior. Similar conclusions were made by DeFleur and Westie (1958) who demonstrated a nonlinear relationship between attitudes and behavior and conjectured some variable of group membership accounted for the lack of linearity.

b. Public vs. Private Behavior: Several investigators have found that when subjects were asked to make public their opinions, they were resistant to attempts to change their attitudes (Hovland, Campbell and Brock, 1957; Deutsch and Gerard, 1955). In considering the public-private dimension, Keisler (1971) states that: "If one can remain anonymous, it is difficult to refuse to tape record a speech that one endorses. Many of the objections to recording a public speech are irrelevant when one's identity will not be known by the audience. Because no one will know who it is, one can't refuse because of possible embarrassment, or a feeling of invasion of privacy, or the possibility that the opinion is incorrect" (p. 167-168). Hyman (1949) suggests that attitude and behavior consistency is increased when measures of both are obtained under similar circumstances, either public or private.

c. Personality and Situational Variables: Personality variables become more significant predictors of behavior when their interaction with situational factors is measured (Mischel, 1968; Kamal, 1970). Rausch, Dittman and Taylor (1959), in their report on the social interactions of hyperagressive children in residential treatment, state that:

> Perhaps the most striking finding was the extent of interaction between child and setting. The unique confluence of child and setting contributed far more to behavior than did the summative effects of individual-difference and setting components. In fact, the potency of situational influences on behavior was somewhat obscured until setting variations were examined for each child individually; similarly, individual differences were more closely related to behavior when each setting was examined individually. It is not surprising to find interactive effects - that situations have different, though consistent behavioral 'meanings' for different people. (p. 374)

In a study (Bray, 1950) of the relationship of attitudes towards minority groups, personality (Guilford-Martin Inventory of Factors GAMIN) and conformity behavior, no significant relationship was found between any of the factors. Bray (1950) suggests that there are different degrees of attitude and that attitudes will be differentially affected by personality. Furthermore, prediction of behavior, a relatively complex task, may result from the interaction of personality variables. Bray's position that personality variables interact with one another, is quite different from those who postulate that considering the interaction of situational and personality variables will lead to the best prediction of behavior (Mischel, 1968; Rausch, Dittman and Taylor, 1959).

d. Alternative Behaviors Available: Azjen and Fishbein (1969) found that BI in a dichotomous choice situation was more highly correlated with Aact than either intention was with Aact. Further, predictions based on the rank order of many behaviors (in this case, the rank of eight behaviors) are almost always better than those obtained by the original Aact, NB_p and NB_s. In other words, "alternative behaviors open to the individual have to be considered in predicting behavioral intentions and thus in predicting behavior" (Azjen and Fishbein, 1969, p. 414). Insko and Schopler (1967) suggest that opportunities for corresponding behaviors for some attitudes may not exist, that, in fact, when similar alternative behaviors are present in both the attitude measurement and the behavioral measurement situations, greater consistency will obtain.

e. Specificity of Attitudes and Behaviors in the Measurement Situation: It is possible that the measurement situation itself imposes limitations upon the expected congruence of two variables. In other words, if the stimulus in one measurement situation is general and the stimulus in the other is specific, there are bound to be few significant relationships (Fishbein, 1966; Chein, 1949; Cook and

Selltiz, 1964). For example, frequently, as in LaPiere's (1934) study, attitudes toward a group in general is examined, while the behavior toward specific members of that group is assessed. In other words, the stimulus person or object might be quite different from a person's general conception of the class of objects of people (Wicker, 1969). Himmelstein and Moore (1963) suggest that no relationship between attitudes toward Negroes and signing a petition was obtained in their study because the level of prejudice was measured in a more general way than were overt behavioral responses.

Barnes (1970, Azjen and Fishbein (1969) and Mitchell, (1971) provide direct evidence of this point. In Barnes' (1970) study, few significant differences were found between a student teacher groups' valued teaching behavior and practice teaching behavior. Azjen and Fishbein (1969) were able to predict behavioral intentions by attitudes and beliefs when responses to the same behaviors were elicited in all measures. Mitchell (1971), using the same measurement approach as Azjen and Fishbein (1969), was able to obtain high multiple correlations between behavioral intention and attitude and belief measures. The point is that attitudes toward behaviors, beliefs and values in the three studies were concerned with attitudes toward behaviors, beliefs about behaviors, valued behaviors; the same behaviors measured in the overt behavior or behavioral intention situation.

Prediction of Behavior

1. Fishbein's formulation

Azjen and Fishbein (1971) reviewed the literature in which the Fishbein formulation was used for the prediction of behavioral intention (or behavior). The review indicates that specific behaviors can be predicted by specific behavioral intentions. Further, the studies reviewed showed that intentions are a function of both the individual's attitude toward the act (Aact) and his perceptions of the normative expectations of the reference group multiplied by his motivation to comply with these expectations (NB(Mc)).

In addition, the studies suggest that a given behavior may be predicted either directly (by BI) or indirectly (by Aact and NB(Mc)) (Fishbein, 1972).

It should be recalled that in an earlier part of this paper, personal normative beliefs (NB_p) were also included in the formulation. However, since many studies (Fishbein, 1972) obtained very high correlations between behavioral intentions and personal normative beliefs, NB_p may be seen as an alternative measure to behavioral intention in the prediction of behavior and may therefore, be redundant information. Mitchell (1971), in a preliminary study utilizing the original model, also found that NB_p obtained high correlations with BI. The present version of Fishbein's theory has only two predictors, Aact and NB(Mc).

Specifically, Azjen and Fishbein's review (1971) cites five studies in which the relationship between behavioral intention and overt behavior has been investigated (Azjen and Fishbein, 1970; Azjen, 1971; Hornick, 1970; Darroch, 1971; Fishbein, Azjen, Landy and Anderson, 1970). The correlations between behavioral intention and behavior in the five studies ranged from .211 to .970, with an average correlation of .628. Several explanations were offered for obtained low correlations between behavioral intention and behavior: (1) restricted criterion range; (2) intervening activities in the time interval between measurement of behavioral intention and behavior; (3) change in intentions as the result of feedback during the performance of behavior; (4) lack of specificity of the behavioral intention measure; (5) inability of the person to perform the behavior; (6) lack of opportunity for the person to perform the behavior.

Since more accurate prediction of behavior is obtained when the measures of intention and behavior are gathered close in time and when situational feedback about the behavior is not present, it is important to consider the prediction of behavior in which these two conditions cannot be avoided. Fishbein (1972) suggests that when these two conditions exist, it is necessary to consider other variables which might effect changes in the original behavioral intention. Variables about which subjects have knowledge at the time of BI assessment would be likely to influence Aact and NB(Mc), while those which intervene between the measurement of BI and B will be likely to influence B.

2. The Behavior Criterion

The studies reviewed in the previous section demonstrate that little or no relationship has been obtained between attitudes and behavior. Several explanations for a low correspondence are suggested by these studies: (1) failure to consider other variables as determinants of behavior (e.g., Wicker, 1969); (2) the theoretical framework within which investigation of the relationship is conducted (DeFleur and Westie, 1963); (3) definition of the attitude concept (Wicker, 1969; DeFleur and Westie, 1963; Fishbein, 1967b); (4) specificity of attitudes and behaviors in the measurement situation (Fishbein, 1966; Chein, 1949; Cook and Selltiz, 1964; Wicker, 1969).

Fishbein in a preliminary draft of a paper soon to be published (Fishbein, 1972), suggests another explanation for the lack of obtained congruence between attitudes and behavior. He contends that not enough attention has been paid by researchers to the behavior criterion, that it is possible to "put an end to the well established myth, namely, the myth that behavioral prediction is difficult" (p. 1).

Fishbein (1972) notes four primary types of behavioral criterion scores: (1) single act, single observation; (2) single act, repeated observation; (3) multiple act; (4) multiple act, repeated observation.

The single act, single observation criterion is obtained by determining whether or not a person has exhibited a behavior. It may be noted as a dichotomous (present, not present) entry or a continuous (how much) entry. Since the determination of the existence of the behavior must be made by an observer, it is essential that both within and between observer reliability be high. The second type of behavioral criterion, the single act-repeated observation, is based on all entries in a given row, and, thus, is repeated observation of the single act, single observation criterion. The third criterion, multiple act, considers different behaviors, each observed on the same occasion. The fourth type, the multiple act-repeated observation, considers either all row or column sums or the total entries.

Fishbein (1972) suggests that the criterion should not be based on a single observation of a specific behavior, since opportunity to exhibit the behavior may not be present in the single observation. However, a single observation may also describe a finite time period in which the individual is expected to have the opportunity to exhibit the behavior in question. For example, behaviors may be sampled in two ways, event and time (Kerlinger, 1964). Event sampling requires that the investigator be present when certain events occur. Events are "... life-like situations and thus possess an inherent validity not ordinarily possessed by time samples" (Kerlinger, 1964, p. 512). Time samples may be chosen systematically (at specified times) to assure that opportunity exists to exhibit the behavior in question, that, in fact, the investigator has obtained representative samples of behavior. While continuity is inherent in event sampling, it may not be in time sampling if behaviors are used infrequently. Therefore, the single act criterion may be obtained by sampling events (specific behaviors) at specified times in order to maximize the likelihood of behavior performance. Since the single act criterion then becomes a single observation composed of multiple entries, it is necessary to establish the reliability of the behavior. Fishbein (1972) stresses that it is as important to establish the reliability of behavioral criteria as it is to establish the reliability of attitude items.

A multiple act criterion score may be based upon one of the four following considerations: (1) inference; (2) Thurstone scale; (3) Likert scale; (4) Guttman scale.

"Irrespective of whether the final criterion score is based on single observations, repeated observations, or some combination of both, multiple act criteria can either be based on some standardized scaling procedure, or non-scaled and simply based on some inference process of the investigator" (Fishbein, 1972, p. 13). Inferences may be based on hunches, but should be supported by expert opinion as to their importance in representing a particular dimension. Doob (1947), Thurstone (1931) and Campbell (1963) contend that while a general attitude measure may predict a pattern of behavior (e.g., a multiple act criterion), it may not predict a particular single act. Fishbein (1972, p. 23) points out "that almost all of the studies of the attitude-behavior relationship that have been conducted have...attempted to predict one very specific behavioral criterion" from some general attitude measure. Further, he contends that:

> Needless to say, lack of correlation between the attitudinal and behavior measures in these cases is neither surprising, nor does it say very much about the nature of the attitude-behavior relationship. Thus one can again arrive at the conclusion that traditional attitude measures should not be expected to

> predict single act criteria. However, when the predictor is appropriate to the criterion, behavioral prediction of single acts is not only possible, it is quite likely. (Fishbein, 1972, p. 23)

Fishbein and Azjen (1971) conclude that an individual's general attitude should be related to an overall pattern of behavior, although it is unlikely to be related to a specific behavior with respect to the attitude object. However, only one direct test of this assumption has been made using self-reports of behavior to construct a multiple act criterion (Fishbein and Azjen, 1971). None have been made using an overt behavior criterion.

Consistent with Dollard (1949), Fishbein (1972) cites ability to perform the behavior in question as "a factor that can lead to a 'true' breakdown in the intention-behavior relationship. Fortunately, for the most part, people do not intend to do things that they realize are beyond their ability" (p. 26). It could be argued that people do not always accurately perceive the difficulty of performing a behavior, thus it may be advisable to measure the person's perception of the difficulty of performing a given behavior in a given situation regardless of how far apart in time intention and behavior are assessed.

3. Where Behaviors to be Predicted are Specified as Training Program Objectives

Occasionally, as in a teacher inservice workshop, the behaviors to be observed are pre-determined by the stated objectives of the training program. Recent concern in teacher education has devolved upon methods to teach teachers to use specific skills. The Stanford micro-teaching clinics (Allen and Ryan, 1969) were developed to extend the teacher's range of communication skills. Concentration on the development of a single skill (behavior) seems to have been more effective in changing teacher behavior than the traditional "lesson" which involved the utilization of many skills. Many state departments of education are developing performance criteria for the certification of school personnel (Burdin and Reagan, 1971) in which the teacher's ability to use specific skills is the criterion for evaluation. The Florida State Department of Education (Dodl, et al., 1971) has catalogued hundreds of skills which might be used as criteria for teacher competency. The use of programmed instruction in teacher training (e.g., B-2 Modules, Florida State Department of Education, 1970) has developed from the concern that teachers have the ability to use certain skills. The USOE funded nine teacher education models in 1968 (Klatt and Le Baron, 1970) in which objectives had to be specified for single teaching behaviors.

In other words, the USOE as well as many state agencies have discarded the assumption that teachers have the ability to use a general teaching strategy in favor of a more experimental view that a complex teaching strategy (e.g., using questions effectively, Bush, 1967) can be developed after component skills are mastered.

The trend toward the development of component skills within a general teaching strategy suggests that predicting a multiple act criterion, which might be useful for describing a pattern of behavior, will be less useful to a teacher trainer than a single act criterion.

If prediction of teacher behavior is to be valuable for grouping teachers for training for specific objectives, high prediction of the single act criterion provides more information to the trainer.

Summary and Statement of Research Questions

This survey of the literature on the relationship of "attitudes" to behavior and the prediction of behavior indicates that prediction of behavior is possible when specific behaviors are being predicted by appropriate behavioral intentions. Further, recent trends in teacher education indicate that objectives should be specified for single teaching behaviors. Therefore, a study which attempts to explore the prediction of teacher behavior should investigate the prediction of single act (single teaching behaviors) criteria, as well as a multiple act criterion (a pattern of behavior). In addition, the literature suggests that behavioral prediction will be increased if both "attitude" and behavior measures are obtained in a "private" (or public) condition.

The only theory to have recently generated studies of the "attitude"-behavior relationship may be attributed to Fishbein and his associates. Utilization of the theory permits operationalizing constructs traditionally ill-defined in attitude research. For example, attitude is defined only as affect (Aact), while normative beliefs are defined in terms of situational and reference group expectation (NB).

Separation of the concepts permits testing their contribution to the prediction of behavioral intention. Behavioral intention is the immediate antecedent of behavior and, therefore, may serve as an operational definition of commitment to behave. Thus, BI may serve as a direct way of predicting behavior, while using Aact and NB(Mc) as predictors would be an indirect method of predicting a specific behavior. Intention (or commitment) may also mediate between attitudes and behavior. In other words, it is possible that better prediction of behavior by "attitudes" is obtained when separate analyses are performed for subjects grouped by level of commitment.

Research utilizing the theory suggests that personal normative beliefs are highly correlated with the intention measure, and therefore, add no new information to the predictive equation.

If measures of behavioral intention (commitment) and behavior are obtained at different points in time, the contribution to behavioral prediction of intervening factors ought to be considered. Intervening factors are those about which subjects have no knowledge at the time of the intention assessment. On the other hand, variables which are assessed at the same time as intention are likely to affect responses to the intention measure. To be consistent with findings in the literature, factors which may affect intention are perceived ability to perform a given behavior (Difficulty or D), utility of the behavior for attaining objectives (U) and reference groups (Grade Taught (GT)[4]; Workshop Attended (WA)). However, Fishbein contends that in responding to the measures of the models' basic variables, teachers will take GT, WA, U and D into account and, therefore, these variables are not likely to contribute to the prediction of behavioral intention above that which Aact and NB contribute.

The models to be tested may now be identified.

Illustration I presents the models in graphic form:

ILLUSTRATION 1

Models to be Tested

Direct	Indirect
	2
	$BI = a_1 Aact + a_2 NB$ or
1	3
$B = BI$	$BI = a_1\ Aact + a_2 NB + a_3 U + a_4 D + a_5 GT + a_6 WA$

where: B = behavior

$a_1 \ldots a_6$ = empirically determined weights

The specific questions to be answered are:

(1) What is added to the predictive efficiency of Aact and NB by U, D, WA and GT collectively in the prediction of BI, and further, what is added to the predictive efficiency of BI by intervening[5] variables in the prediction of single act teacher behaviors (B)?

(2) Is teacher behavior (B) a partial function of perceived difficulty of performing the behavior (D)?

(3) Is prediction of teacher behavior improved when teachers are grouped by their obtained level of commitment (ΣBI) scores over that which is obtained when ΣBI is included as a predictor for the total research sample?

(4) Are single act teacher behaviors (B) better predicted by (correlated more highly with) an appropriate behavioral intention measure (BI) than be a general attitude measure (A_o) or ΣBI and can A_o predict a multiple act behavior criterion better than a single act criterion?

NOTES: CHAPTER TWO

1. See DeFleur and Westie (1963) for a discussion of the attitude concept.

2. See Baker's findings, p. 8.

3. The investigator and Dr. Fishbein met from January 30 to February 1, 1972 at the University of Illinois.

4. Previously (Chapter One), it was stated that this study will test an attitudinal/behavior model with a sample of teachers who participated in a training program. The grade taught (GT) by the teacher might be expected to influence a teacher's intention to use specific behaviors in the classroom. For example, early education teachers (four through seven year olds) might be expected to value different teaching behaviors than teachers of the intermediate grades (eight through twelve year olds). Specifically, the progressive education movement of the 1930's stressed an emerging curriculum in which experiential learnings of an extemporaneous nature were considered to be more important than subject matter oriented learnings. Early childhood teachers have tended to emphasize the emerging curriculum (e.g., Gans, Stendler and Almy, 1952; Landreth, 1967; Landreth and Read, 1942), while intermediate level teachers have tended to emphasize subject matter content. Therefore, teaching behaviors which tend to be content oriented may be valued by certain teachers more than others.

   The learning environment (e.g., workshop attended, WA) in which teachers are trained to use specific behaviors may also influence his intentions to use the behaviors in the teaching situation (DeFleur and Westie, 1963). If, as in the Hartford Follow-Through Training Program for Teachers and Paraprofessionals (Mitchell, 1971), the stability of the training environment is maintained for successive groups of participants through the utilization of identical training personnel and physical facilities, the influence of a particular workshop on teachers' intentions should be minimal. However, if the stability of the training environment is not maintained for different groups of teachers, the particular workshop attended might influence teachers' intentions.

5. See p. 40 and 47 for a discussion of the role of intervening variables in the prediction of behavior.

CHAPTER THREE Description of the Study

The Field Situation

Approximately 450 teachers of grades K-6, an average of five teachers from each of 90 schools in Broward County, Florida, were asked to attend a summer institute for the social studies in the summer of 1971. About 400 teachers representing 83 elementary schools actually participated. The teachers self-selected into three workshop groups by their preference for one of three new social studies textbooks being introduced into the schools (Field, Harcourt, Laidlaw)[1]. All three workshops stressed: (1) the use of critical thinking skills, (2) value analysis and clarification activities, and (3) discussion with two or more children. The criterion for selecting the training population was that all teachers would be expected to use the texts for similar activities in the classroom teaching situation, thereby providing: (1) a common set of training objectives (determined by the researcher in consultation with the Director of Social Studies of Broward County and the five area social studies supervisors) which might be placed into the evaluation model, and (2) an opportunity to assess affect, beliefs, behavioral commitment and behavior in relation to these objectives. The following ten behaviors were defined as training program objectives:

1. Asking children to make their own observations from data (OOUD);
2. Asking children to relate, compare, contrast and classify units of data (CCC);
3. Asking children to make their own interpretations (inferences) of the data (IFD);

4. Asking children to support their interpretations of the data (ETSI);

5. Asking children to make guesses or hypotheses or predictions (HAP);

6. Asking children to support their hypotheses or predictions (ETSHAP);

7. Asking children to make generalizations (GBOI);

8. Asking children to support their generalizations (ETSG);

9. Asking children for alternate hypotheses, predictions or generalizations (AIHPG);

10. Asking children to evaluate for their own use the value of units of data, interpretations of data, hypotheses, predictions, generalizations and alternatives (EAVJ).

The social studies supervisors defined these objectives (of critical thinking) to be consistent with current federal and state concerns. For example, in Report to the President: White House Conference on Children, in the section entitled "Schools and Value Responsibility," the recommendation is made that:

> All schools place special emphasis on the process of ethical reasoning and value formation. Stress should be on practice in discussing and arriving at individual ethical choices, with emphasis on both individual and social responsibility. (1971, p. 68)

Further, in A Rationale for the Social Studies (Brady and Brady, 1971) published by the Florida State Department of Education, in the section entitled "Values," the following statement is made:

> Rational process-avoiding premature judgment, collecting and weighing evidence, evaluating alternative conclusions-can be practiced and refined in the classroom. Furthermore, rationality will provide a sound basis for the student to evaluate what "ought to be" for himself. This

> is an essential skill, for in a changing world, no generation has all the answers for its successors. (p. 59)

Many writers (e.g., Hunt, 1961; Ojemann, 1965; Wertheimer, 1959; Taylor, 1965; Bruner, et al., 1956; Passow, 1965; Suchman, 1961; Taba, 1962; Bloom, et al., 1956; Guilford and Merrifield, 1960) have stressed the use of critical (or productive) thinking skills in education. The Rationale for the Social Studies (Brady and Brady, 1971) suggests that children need to be engaged in all of the processes subsumed in a classification of thinking skills.[2]

The specification of training objectives was made in consideration of the literature on thinking skills and the use of thinking skills for value exploration (Brandwein, 1969, 1970; Fenton, 1966; Scriven, 1966; Joyce, 1968) in the social studies curriculum. Consistent with the work of Taba, et al. (1968) in developing teaching strategies for teaching the social sciences in grades 1-6, the objectives stressed the use of evidence to support statements made by children. Stressing the use of evidence is not unique to the social studies. The science curriculum materials produced by the American Association for the Advancement of Science (AAAS, 1967) maintain a similar focus.

Taba, et al. (1968), Joyce (1968) and Fenton (1966) make a distinction between the use of teacher behaviors which require that children perform a thinking operation (e.g., teacher asks) and those in which the teacher performs the operation for children (e.g., teacher gives). The use of "teacher ask" behaviors is not considered by them to be contingent upon the use of specific curriculum materials, although:

> There is, of course, no denying the importance of good instructional materials. We need all the help we can get. But the improvement of social studies teaching does not hinge on a constant supply of new materials. The "new" social studies isn't in a film can or game box or soon-to-be released textbook series. Exciting, relevant, and effective instruction is certainly easier with some of the new materials. (Brady and Brady, 1971, p. 62)

Overall Design

The researcher attended all three workshops and was given permission to describe the research project to workshop participants. Each workshop leader introduced the investigator as a doctoral student, interested in the development of social studies curriculum for the elementary grades. The leader stated that permission to conduct a research project with workshop teachers had been granted by the Associate Superintendent. The introduction implied approval of the project by the workshop leader and gave unqualified approval of the administration. The researcher then gave a prepared statement (Appendix A) which had been memorized, explaining the extent of cooperation desired (completing a questionnaire and making audio-tapes). The following points were stressed: only the investigator would know the identity of the respondents; no one in the school system would have access to the tapes; the tapes would be returned to the teachers. The researcher's intent in making the presentation personally and in attending all three workshops, was to maintain personal contact with teachers throughout the conduct of the study, and to maximize the likelihood of obtaining at least 100 participants for making audio-tapes.

A Social Studies Survey (Appendix B) was administered to all summer institute participants. Each survey had a coded identification number so that the respondent's identity would be known only to the researcher. The survey contains fifty items to measure ten behaviors defined as training program objectives.

The cover sheet of the survey asked teachers if they would be willing to audio-tape three fifteen-minute social studies discussions with two or more children. Although one discussion would have assured more homogeneous conditions, it might not have provided an opportunity for a teacher to exhibit all ten behaviors. Two weeks prior to the start of taping and five weeks after teachers indicated their willingness to participate,[3] the researcher delivered tape cassettes with instructions (Appendix C) for taping one fifteen-minute discussion a week for three weeks. At the beginning of the week specified for the third discussion, all participants received a communication from the researcher stating that the third discussion might run as long as possible or approximately 30 minutes (Appendix D). The intention was to allow the teachers and their children to develop confidence during the first two taping sessions so that the third need not be stopped at fifteen minutes.

In order to minimize the likelihood of teacher drop-outs and poor tape recordings, the following procedures were employed:

(1) All tape cassettes (and instructions) were delivered by the researcher personally to each teacher in his school;

(2) The researcher's telephone numbers at the University and at home were provided to participants;

(3) The researcher personally spot-checked teachers in their schools during the taping period to assure that:

   a. Taping was being done as scheduled,

   b. all teachers were able to operate the tape recorder,

   c. all tape recorders were functional,

   d. all tape cassettes were in good condition, and

   e. personal contact was maintained with the participants.

(4) Teachers received (by mail) a copy of the taping instructions on the day before taping was to begin to assure that all began at the appropriate time;

(5) All tape cassettes were collected personally by the researcher.

Two coders were trained to code the 10 behaviors defined as training program objectives. A reliability coefficient of .85 (between and within coders), as computed by Scott's Pi coefficient (Scott, 1955), was established as a minimum level of reliability. Discussion tapes made by participants not in the research sample were used for training coders. Upon completion of coding, the tapes were returned to the teachers with a copy of the coding scheme used in the research.

Sample

One hundred twenty teachers (Field, N=39; Harcourt, N=78; Laidlaw, N=3) indicated their willingness to make tapes in the following way:

(1) Seventy-five responded positively on the cover sheet of the questionnaire and,

(2) visits by the researcher to workshop participants in a sample of schools in each of the five districts yielded an additional 45.

One teacher returned her tape shortly after delivery. The decision was made not to include the three Laidlaw teachers in order to minimize the number of predictors in the analysis. Of the remaining 116 teachers, one hundred eleven tapes were collected. Coding of the tapes yielded 103 teachers with at least 45 minutes of discussion; i.e., 45 minutes were coded from the beginning of side one of the cassette. These teachers represent 2 of the 3 workshops, Field (N=35) and Harcourt (N=68). A loss of no more than 20 teachers was anticipated because the project offered the teachers opportunity for self-improvement and opportunity for self-responsibility (Keisler, 1971).

The research sample consists of 103 teachers from 37 schools who taped at least 45 minutes of discussion: 13 males, 90 females; 46 who teach grades K-2, 57 who teach grades 3-6; 53 in flexible (open-space) schools, 50 in self-contained classrooms. An examination of Table 1 indicates that these teachers appear to be representative of the workshop population in two (sex and grade taught) of the three categories.[4] For school situation, fifty-one percent of the sample teach in flexible schools, although only 34% of the training population teach in flexible schools.

TABLE 1

Proportions of Population (P)
Total Cover Sheet Respondents = 373, Sample(S) = 103

		Total in P	Total in S	Proportion to P	Proportion to S
Sex	Males	42	13	.107	.126
	Females	331	90	.893	.874
Grade Taught	K-2	159	46	.426	.447
	3-6	214	57	.574	.553
School Situation	Flexible	126	53	.338	.514
	Self-Contained	247	50	.662	.485

Instrumentation

Social Studies Survey

The survey contains fifty items to measure ten behaviors defined as training program objectives. Each of the ten behaviors is assessed by each of the five following scales:

(1) Commitment to perform the behavior (BI), pages 3 and 4 of the survey, is measured by a 7 point behavioral differential scale (Triandis, 1964; Azjen and Fishbein, 1969; Mitchell, 1971).

(2) Affect (attitude) toward performing a given behavior (Aact), pages 6 and 7 of the survey, is measured by four pairs of bi-polar adjectives, each on a 7 point semantic differential scale (Osgood, Suci and Tannenbaum, 1957; Azjen and Fishbein, 1969, Mitchell, 1971).

(3) Perceived expectations of supervisors for performing the behaviors (NB), pages 8-11 of the survey, is measured on a 7 point probability scale (Azjen and Fishbein, 1969; Mitchell, 1971).

(4) Perceived difficulty of performing the behavior (D) is measured on a 7 point difficulty scale consistent with the measurement of the above variables (p. 12 of the survey).

(5) Perceived utility of performing the behavior (D) is measured on a 7 point usefulness scale consistent with the measurement of the above variables (p. 12 of the survey).[5]

The fifty items are embedded in a 75 item questionnaire (Appendix B). The survey requires 15-20 minutes to complete. Although more irrelevant items would have been desirable, the workshop personnel, experienced in administering questionnaires to teachers, felt that teachers might react negatively to a longer survey, thereby decreasing the likelihood of obtaining a sample for making audio-tapes.

The order of the items was as follows: all BI items, all Aact items, all NB items, all U and D items. It was not possible to randomly order all 50 items, since instructions relevant for the four different formats needed to be provided. The instructions had to be explicit enough for a teacher to be able to complete the survey without assistance. All fifty items were rated on a semantic differential type scale, with seven choices per item. The bi-polar pairs for each of the sets of items were as follows:

BI	would	___ ___ ___ ___ ___ ___ ___	would not;
Aact	harmful	___ ___ ___ ___ ___ ___ ___	beneficial
	good	___ ___ ___ ___ ___ ___ ___	bad
	pleasant	___ ___ ___ ___ ___ ___ ___	unpleasant
	foolish	___ ___ ___ ___ ___ ___ ___	wise;
NB	probable	___ ___ ___ ___ ___ ___ ___	improbable;
U	useful	___ ___ ___ ___ ___ ___ ___	not useful;
D	difficult	___ ___ ___ ___ ___ ___ ___	not difficult.

The item scores were the values indicated by respondents. A rating of seven corresponds to the teacher asking the child to perform an operation (teacher asks). A rating of one represents the teacher performing an operation for children (teacher gives). In order to avoid response bias, some behaviors were worded as "teacher gives" and some were worded as "teacher asks."

The item scores for all Aact items was the mean of the four bi-polar pairs. Ten principal components analyses were performed in which the variables were the four pairs of bi-polar adjectives for each Aact item. Obtaining the sums of the four bi-polar pairs was justified, since all four pairs of bi-polar adjectives for each Aact item loads (above .70) on Factor 1, the evaluative factor. The results are presented in Table 2.

Development of the survey had been accomplished by obtaining feedback on the wording of items from nine former elementary teachers. Reliability of the fifty items was assessed in two ways. First, prior to its administration to the workshop teachers, the survey was administered to 23 elementary teachers on two separate occasions, approximately one week apart. From this procedure, a time estimate of 15-20 minutes for completion of the survey was obtained. The range of correlations (.51 to .97) between the first and second administrations may be seen in Table 3.

TABLE 2

Principal Component Factor Loadings of Four Bi-Polar Adjectives on Evaluative Factor for Each Aact Item

(N = 103)

Evaluative Factor For Aact Item No.	Factor Eigen-Value	% Trace	Evaluative Factor Loadings HB*	GB	PU	FW
1	2.458	61.5	.815	.830	.703	.781
2	3.530	88.3	.946	.957	.913	.941
3	3.303	82.6	.898	.950	.895	.890
4	3.348	86.0	.935	.946	.901	.926
5	3.418	85.5	.939	.961	.870	.925
6	3.479	87.0	.946	.948	.923	.913
7	3.544	88.6	.949	.950	.906	.960
8	3.215	80.4	.921	.923	.821	.917
9	3.098	77.4	.923	.908	.788	.894
10	3.165	79.1	.945	.889	.957	.794

*HB = Harmful, beneficial; GB = Good, bad; PU = Pleasant, Unpleasant; FW = Foolish, wise

TABLE 3

Correlations of Items, Test(x)-Retest(x')

(N = 23)

Item No.	rxx'	Item No.	rxx'
1	.746	26	.716
2	.924	27	.805
3	.837	28	.654
4	.805	29	.974
5	.759	30	.758
6	.814	31	.972
7	.933	32	.701
8	.784	33	.938
9	.695	34	.933
10	.821	35	.928
11	.616	36	.925
12	.568	37	.953
13	.669	38	.716
14	.775	39	.688
15	.516	40	.618
16	.725	41	.891
17	.698	42	.960
18	.891	43	.883
19	.858	44	.735
20	.620	45	.947
21	.932	46	.877
22	.835	47	.894
23	.881	48	.931
24	.890	49	.843
25	.923	50	.808

Since "we would be delighted with reliabilities of .50 and above for...a short 'test' (Guertin and Bailey, 1970, p. 216)," the obtained reliabilities for fifty items on five 10-item tests were considered to be high enough to permit administering the survey to the training population.

The second method used to assess the reliability of the survey items was computation of the communalities for the research sample as an index of minimum reliability. Communalities are the amount of common factor variance or variance shared with all other tests. The communality of a variable is equal to or less than the reliability of the variable and will only equal the reliability when the specificity is removed (Harman, 1968). Also, test-restest reliability is not likely "to be less than the square root of its communality. Low communality does not mean low reliability; however, it does mean that high communality assures high reliability" (Guertin and Bailey, 1970, p. 215). For example, the square root of an item with a communality of .40 is .63. Table 4 presents communalities for the five sets of ten behaviors, computed in a principal components analysis. Table 4 indicates that obtained communalities would yield reliability coefficients of at least .67 in a test-retest situation.

Attitudinal Likert Scales

(1) A_o

A Likert scale was constructed by selecting the twenty items that correlated most highly with an additive composite of fifty items.[6] The range of item-total correlations was .36 to .53. A_o is used to provide a general measure of attitude or overall favorableness to workshop objectives.

(2) ΣBI

All BI items were summed for an additive composite score to represent overall commitment to workshop objectives. The range of item-total correlations was .28 to .56 for the ten BI items.

TABLE 4

COMMUNALITIES (h^2) OF 10 BEHAVIORS IN FIVE SETS OF ITEMS (N=103)

	BI	Aact	NB	U	D
BEHAVIOR	h^2	h^2	h^2	h^2	h^2
OOUD	.799	.814	.529	.452	.652
CCC	.477	.605	.813	.634	.776
IFD	.526	.632	.668	.757	.659
ETSI	.619	.608	.597	.710	.661
HAP	.593	.614	.672	.707	.841
ETSHAP	.638	.702	.544	.794	.792
GBOI	.664	.863	.696	.709	.834
ETSG	.538	.734	.613	.768	.757
AIHPG	.686	.637	.513	.449	.745
EAVJ	.732	.571	.711	.877	.906

Behavior Coding Scheme for Social Studies Discussions

Research use of teacher behavior coding systems (Amidon and Flanders, 1967; Flanders, 1960; Honigman, 1967) suggests that teachers exhibit varying numbers of behaviors within a category in a given time period. Factors indicated as possible reasons are the style of speech and the percentage of time a teacher actually spends talking as opposed to how much time students spend talking. Therefore, the initial Flander's Interactional Analysis (Flanders, 1960), the revised Flander's System (Amidon and Flanders, 1967) and the Multidimensional Analysis of Classroom Interaction, MACI, (Honigman, 1967) utilize criterion scores based on some ratio of observed behavior to total behavior.

The ten behaviors to be coded were defined by the workshop objectives for Social Studies discussion (pp. 50-51). In order to obtain a ratio of behavior consistent with workshop objectives to total behavior within one single act, it was necessary to code all behaviors in one category. Therefore, the ten behaviors yielded 20 codable categories: i.e., each objective is represented by two types of behavior, positive or "teacher asks" and negative or "teacher gives." The following procedures were used to establish the codability of the 20 categories:

1. Codability of like categories in schemes developed by Joyce (1968) and Taba, et al., (1968)[7];
2. refinement of the category definitions as a result of the trial coding of discussion tapes made for the investigator by 7 public school teachers and 2 University School teachers;

3. the development of a coding sheet for recording behaviors (Appendix E); and

4. the development of a coding manual (Appendix F).

Coded behaviors were sampled in the manner described in Chapter Two, by event and time. For this study, it was not possible for the researcher to be in each of 120 classrooms during social studies discussions. Therefore, three social studies discussions (event sampling) were taped by the teachers at specified times (systematic time sampling), one discussion a week for three weeks. This method yielded one observation designed to maximize opportunity for teachers to exhibit all 10 behaviors.

The coding manual defines each of the 20 categories and cites examples of behaviors in each category. The examples are noted in three different formats; (1) coded teacher behaviors in the context of student responses, (2) lists of sample (out-of-context) behaviors in each category, and (3) a completely coded 15 minute social studies discussion.

Two coders were trained to code the 20 behaviors. A minimum reliability of .85 (calculated by Scott's Pi) was set for both between and within coder reliability. Coding of the sample tapes was begun when reliability coefficients of above .85 were obtained for both within and between coders. Since maintaining reliability of coding throughout the coding period was a primary concern of the investigator, reliability was checked three times (about two weeks apart) during the coding procedure, after the coding of the first 25 tapes, the second 25 tapes and after the third group of 25 tapes.

Reliability (between and within) was computed using the following formula (Scott, 1955),

$$\pi = \frac{Po - Pe}{1 - pe}$$

where: Po (% of observed agreement) = % judgments on which two coders agree; Pe = % agreement to be expected on the basis of chance; π = the ratio of the actual difference between obtained and chance agreement. Scott (1955) suggests that the percent of agreement be calculated on only a part of the total set of behaviors. Therefore, reliability was calculated on five minute observations for both between and within coders. Five minute observations were selected because they represented a more conservative estimate of reliability. In other words, higher reliability is likely to be obtained in a 10 or 15 minute observation, than in a 5 minute one. The tapes used for checking reliability were selected randomly.

Table 5 shows the reliability coefficients of both within and between coders for four points in time: (1) immediately preceding the coding of the sample tapes; (2) after the first 25 tapes; (3) after the second 25 tapes; and (4) after the third 25 tapes. Table 6 shows the results of calculations of between coder reliability for the four time periods. Table 5 indicates that within coder reliability remained above .90 for the duration of the coding period. Table 6 shows that between coder reliability remained above .88 during coding. Also, as can be seen in Table 7, coder disagreements tended to be distributed across the behaviors, indicating that all categories seemed to represent about the same level of difficulty (or ease) in coding. All within and between reliability coefficients exceed the minimum level of .85

set at the start of the study.

TABLE 5

RESULTS OF SCOTT'S π FOR WITHIN CODER
RELIABILITY ON FIVE-MINUTE BEHAVIOR SAMPLES

Coding Period	Within Coder 1 Reliability			Within Coder 2 Reliability		
	Po	Pe	π	Po	Pe	π
(1)	.946	.108	.939	.934	.115	.926
(2)	.940	.080	.933	.934	.154	.921
(3)	.961	.182	.952	.950	.225	.935
(4)	.946	.103	.924	.928	.270	.901

TABLE 6

RESULTS OF SCOTT'S π FOR BETWEEN CODER
RELIABILITY ON FIVE-MINUTE BEHAVIOR SAMPLES

Coding Period	Between Coder Reliability		
	Po	Pe	π
(1)	.928	.108	.908
(2)	.898	.102	.884
(3)	.926	.260	.900
(4)	.910	.120	.898

TABLE 7

DISTRIBUTION OF CODER DISAGREEMENTS

			Within 1				Within 2				Between				Total Coder Disagreements
			P_1*	P_2	P_3	P_4	P_1	P_2	P_3	P_4	P_1	P_2	P_3	P_4	
1	OOUD	Asks		1			1						1		3
		Gives	1										1		2
2	CCC	Asks											1		1
		Gives								1				1	2
3	IFD	Asks			1			1		1					3
		Gives		1				1				1			3
4	ETSI	Asks									1	1			2
		Gives	1			1								1	3
5	HAP	Asks				1								1	2
		Gives							1						1
6	ETSHAP	Asks													0
		Gives									1				1
7	GBOI	Asks		1			1		1						3
		Gives				1								1	2
8	ETSG	Asks							1			1			2
		Gives										1			1
9	AIHPG	Asks	1												1
		Gives								1					1
10	EAVJ	Asks								1	1				3
		Gives	1												1

* = Coding period

In order to calculate a criterion score for each behavior, the following totals were obtained; the total number of "teacher ask" (P) behaviors in a category, the total number of "teacher gives" (N) behaviors in a category and the total number of P + N behaviors in a category (T).

Teachers maintain the same rank relative to one another whether P or N are computed as a function of the total P + N (T). For this study, $\frac{XP}{XT}$ was designated the behavior criterion score to be consistent with (1) the statement of workshop objectives and (2) the ability of the score to rank teachers on a TA↔TG continuum. The criterion score was submitted to a principal components analysis to obtain communalities as estimates of the reliability of the behaviors. Table 8 presents the results of this analysis.

Table 8 shows that the criterion score yields an estimated test-retest reliability coefficient of at least .78.

Although event and time sampling were utilized in this study to obtain a single 45 minute observation designed to maximize teacher's opportunity to exhibit all ten behaviors, teachers' behavior across the three discussions appears to be fairly stable; that is, the proportion of P to T within one behavior category appears to be stable from one discussion to another.

Table 9 shows the results of 10 separate principal components analyses, one for each behavior, in which the variables were XP/XT for each 15 minute discussion.

TABLE 8

COMMUNALITIES (h^2) OF BEHAVIOR CRITERION (N=103)

Behavior Category	h^2
OOUD	.693
CCC	.663
IFD	.897
ETSI	.656
HAP	.660
ETSHAP	.723
GBOI	.605
ETSG	.659
AIHPG	.863
EAVJ	.697

Behavioral Likert Scale

A multiple act criterion score (MAC) was obtained by constructing a behavioral Likert scale. The range of item-total correlations was .24 to .69. The multiple act criterion represents behavior consistent with workshop objectives.

Data Analysis

This section lists the research questions and the statistical procedures used to answer the questions.

Question 1:

What is added to the predictive efficiency of Aact and NB by U, D, GT

TABLE 9

PRINCIPAL COMPONENTS ANALYSIS:

XP/XT FOR THREE DISCUSSIONS

(N=103)

	Factor Eigenvalue	% Trace	Factor Loading Disc. 1*	 Disc. 2	 Disc. 3
OOUD	2.352	78.4	.770	.941	.935
CCC	1.825	60.8	.698	.834	.802
IFD	1.889	63.0	.787	.755	.836
ETSI	2.359	78.6	.904	.891	.864
HAP	2.204	73.5	.927	.780	.858
ETSHAP	2.115	70.5	.868	.780	.867
GBOI	2.376	79.2	.878	.901	.891
ETSG	2.419	80.6	.843	.927	.921
AIHPG	1.994	66.5	.809	.831	.804
EAVJ	2.717	90.6	.940	.974	.931

* Disc. = Discussion

and WA collectively in the prediction of BI, and further, what is added to the predictive efficiency of BI by OL[8] in the prediction of single act teacher behaviors?

The following models are tested to answer this question:

Model (1) $BI = a_1 Aact + a_2NB + a_3U + a_4D + a_5GT + a_6WA$

Model (2) $B = a_1BI + a_2OL$

Model 1 is an extension of Fishbein's basic model in which only Aact and NB are used as predictors of BI. Therefore, according to the theory discussed on page 50, variables 3-6 should provide no more information than the basic variables in the prediction of BI. Model 1 answers the question, "What is added to the predictive efficiency of Aact and NB by U, D, WA and GT collectively in the prediction of BI?"

Mutliple regression is used to test Model 1. This technique is a special case of multiple correlation (Kelly, Beggs and McNeil, 1969) which compares two models of predictors and the criterion variable when computing the F ratio. The F ratio is calculated from the differences in R^2 between the "full" model containing all predictor information, and the "reduced" model in which selected predictor information is removed. The procedure used in this study is to drop predictors 3-6 collectively from the equation and compare the reduced model to the full model and to note both the differences in R^2 and the P value of the F ratio. If a significant R^2 difference is obtained ($P = < .05$) between the full model and the reduced model with two predictors in this omnibus test, a stepdown procedure will be used to determine which of the four variables is contributing to the significant R^2

difference. The question to be answered by the stepdown procedure is: "What is the predictive efficiency of U, D, WA and GT in the prediction of BI?" The size of the R^2 will also determine the feasibility of utilizing a stepdown analysis; i.e., should a significant R^2 difference be obtained, the magnitude of the R^2 of the full model will be noted. If the full model accounts for a small portion of the behavioral intention variance, a stepdown procedure will not be performed.

Model 2 considers one intervening variable between the measure of BI and B, whether the teachers were among the 75 original participants (O) or among the 45 subsequent participants (L). According to the theory, a variable which intervenes between the measurement of BI and B may contribute to the prediction of behavior.

Model 2 is tested using the multiple regression technique to answer the question, "What is added to the predictive efficiency of BI by OL in the prediction of teacher behavior?"

Question 2:

Is teacher behavior (B) a partial function of the perceived difficulty of performing the behavior (D)?

Canonical correlation is used to test the relationship of two data sets, D and B. If the bivariate correlations between pairs of items were computed, there would be 100 correlations (10 B items and 10 BI items). "To try to think about all these correlations simultaneously is very difficult if one is trying to generalize about the extent and nature of inter-relationships of the domains" (Cooley and Lohnes, 1971, p. 168).

The obtained canonical correlation will be examined in relation to the redundancy of the left set given the right set and the right set given the left set. Proportion of redundancy is an index of the proportion of variance in one set given the other set (c.f., Love and Stewart, 1967). Since the proportion of redundancy is a better index than the magnitude of the Canonical R of relationships that might obtain between sets (Cooley and Lohnes, 1971), a significant Canonical R which extracts most of the variance of both data sets, still needs to be interpreted in the light of how much actual overlapping (redundance) this represents between the sets.

Question 3:

Is prediction of teacher behavior improved when teachers are grouped by their obtained level of commitment scores (ΣBI) over that which is obtained when ΣBI is included as a predictor for the total research sample? Specifically, is prediction of a multiple act criterion of teacher behavior (MAC) by a general attitude measure (A_o) improved when teachers are grouped into High, Medium and Low Commitment groups over that which is obtained when ΣBI and A_o are used as predictors for the total research sample?

Teachers will be grouped into High, Medium and Low Commitment groups according to their obtained level of commitment (ΣBI). ΣBI scores will be converted into stanines. Stanines 1-3 define the Low Commitment group, 4-6 the Medium group and 7-9 the High group.

The multiple regression technique is used to answer Question 3.

In this case, the information of primary interest is R^2. The R^2's obtained when the multiple correlations between MAC, and A_o and ΣBI are computed for each of the commitment groups are compared with the R^2 obtained when ΣBI and A_o are used as predictors for the total research sample. Also the Pearson Product Moment correlations between A_o and MAC will be computed for the total research sample and for each commitment group.

Question 4:

Are single act teacher behaviors (B) better predicted by (correlated more highly with) an appropriate behavioral intention measure (BI) than by a general attitude measure (A_o) or ΣBI and can A_o predict a multiple act criterion (MAC) better than a single act criterion?

Pearson Product Moment correlations will be computed between each single act teacher behavior and its corresponding BI, each single act teacher behavior and A_o, (ΣBI) and MAC and A_o.

NOTES: CHAPTER THREE

1. Each workshop used one of the following texts:
   (1) Center for the Study of Instruction, Principles and practices in the teaching of the social sciences: Concepts and values. New York: Harcourt, Brace and World, 1970

   (2) Grossman, R. and Michaellis, J. Field Social Studies Program. San Francisco, California: Field Educational Publications, Inc., 1970

   (3) King, F. et al. The Laidlaw Social Science Program: Concepts in Social Science. River Forest, Illinois: Laidlaw Brothers, 1968

2. The Rationale suggests two classifications of thinking skills:
   (1) 1.00 Knowledge (Remembering)
       2.00 Comprehension
       3.00 Application
       4.00 Analysis
       5.00 Synthesis
       6.00 Evaluation
       (Bloom, et al. 1956)

   and

   (2) -Observe
       -Classify
       -Measure
       -Infer
       -Make Hypothesis
       -Verify Hypothesis
       -Predict
       -Define Operationally
       -Interpret Data
       -Use Relationships
       (AAAS, 1967)

3. The Associate Superintendent for Curriculum and Teaching for the Broward County Board of Public Instruction, in granting permission to the researcher to conduct the research (Appendix, G), specified that teachers must participate voluntarily.

4. Three hundred seventy-three, or approximately 92% of the teachers who attended the workshops, completed the cover sheet of the survey.

5. Rosen and Komorita (1971) used a four point scale to measure effectiveness, which they interpreted as instrumentality or utility.

6. All Aact, NB, U and D items were used to obtain an additive composite. No BI items were used. Although personal normative beliefs (10 items) were included for the purpose of constructing a Likert scale, they were not utilized in any other analysis in the study. Test-restest item reliability for personal normative beliefs (NB_p, items 31-40) and communalities for the research sample appear in Appendix H, I.

7. Joyce reports inter-coder reliability (based on frequency of coder agreement within categories) of .85 to .95. No reliability coefficients are reported by Taba.

8. OL = Original - Late or participation status. O refers to those teachers who were among the 75 who responded positively on the cover sheet of the questionnaire. L refers to those teachers who were among the 45 additional participants obtained during the researcher's visits to a sample of schools in each of the five districts.

CHAPTER FOUR

Results of Data Analysis

The statistical analyses used in this study were described in Chapter Three. The first section of this chapter is concerned with descriptive statistics of the results of the social studies survey and behavior items used in the prediction of single acts. The results presented provide information about: (1) the means and variability of BI and B and serve as a decision tool for the designation of criterion variables to be used in further analyses; (2) the correlations between Aact and U to determine whether U is an alternate measure of Aact. If a high correlation between Aact and U is obtained, U will not be retained as a predictor (c.f., discussion on p. 31); (3) the formation of commitment groups. The remaining sections deal with the investigation of the research questions.

Descriptive Analysis

Means and standard deviations of all items used in analyses involving the prediction of single acts appear in Table 10. Table 10 indicates that there is enough variance in each of the behavior categories to enable them to be used as criterion variables in further analyses (Column 1). Nine of the ten BI items have enough variance to be used as criterion variables in further analyses (Column 2). The decision was made not to use CCC-BI as a criterion variable since a standard deviation of only 1.01 was obtained. The results given in Table 10 reflect the emphasis in the workshops on using questions to

TABLE 10

MEANS AND STANDARD DEVIATIONS OF ITEMS USED IN PREDICTION OF SINGLE ACT BEHAVIORS

N = 103

	1		2		3		4		5		6	
	XP/XT		BI		Aact		NB		U		D	
Behavior	M	S.D.	M	S.D.	M.	S.D.	M	S.D.	M	S.D.	M	S.D.
OOUD	65.27	20.98	5.38	1.86	4.46	1.69	4.96	1.79	4.64	1.90	2.77	1.76
CCC	65.59	23.27	6.39	1.01	3.47	1.61	5.70	1.46	5.27	1.76	3.50	1.86
IFD	59.68	21.94	4.16	1.88	6.02	.69	3.02	1.56	4.74	1.71	2.78	1.64
ETSI	62.18	23.64	5.11	1.62	3.21	1.56	4.42	1.83	5.14	1.65	2.83	1.72
HAP	68.47	20.61	4.99	1.84	4.65	1.47	5.05	1.77	4.54	1.89	2.99	1.75
ETSHAP	62.02	22.27	5.06	1.76	5.59	1.24	4.16	1.97	5.34	1.63	3.01	1.77
GBOI	43.52	23.16	4.34	1.81	4.74	1.34	4.87	1.61	4.42	1.73	3.07	1.74
ETSG	54.94	24.89	3.39	1.93	6.07	.96	4.48	1.80	5.66	1.44	3.19	1.76
AIHPG	58.17	25.86	4.09	1.94	2.49	1.46	3.68	1.74	5.85	1.26	3.94	1.81
EAVJ	46.54	22.98	4.33	2.03	5.77	1.21	5.61	1.34	6.54	.78	4.56	2.07

help children to explore their own values. EAVJ is considered by teachers to be the least difficult to perform of all behaviors, (Column 6) the most useful, (Column 5) and the most desired by social studies supervisors (Column 4). Teachers vary most in their intentions to use EAVJ (Column 2). The mean criterion score (Column 1) for EAVJ was one of the two lowest scores.

The results seem to indicate that as a result of the training program teachers were aware both of the utility of evaluation questions and supervisors' expectations that these questions be used during social studies discussions. However, teachers showed great variability in both their perception of the difficulty of using EAVJ behaviors and in their intention to use these behaviors in the classroom. Both of these factors may account for the rather low score obtained on the behavior criterion.

The lowest means are obtained for the GBOI and EAVJ categories. Both categories represent asking children to make conclusions, either about the data (GBOI) or beyond the data (EAVJ).

An examination of Table 11 shows that the correlations between Aact and U are low to moderate for each of the ten behaviors. Therefore it was decided to retain U as an independent predictor since, in this study, U is not an alternate measure of Aact.

Each teacher's ΣBI score was converted to stanines in order to construct three commitment groups. Table 12 presents the scores and groups: Low Commitment (LC), N = 22; Medium Commitment (MC), N = 57; High Commitment, N = 24.

TABLE 11

CORRELATIONS BETWEEN Aact AND U

N = 103

Behavior Category	r (Aact, U)
OOUD	-.004
CCC	-.095
IFD	.227
ETSI	.208
HAP	-.196
ETSHAP	.447
GBOI	.184
ETSG	.362
AIHPG	-.220
EAVG	.100

TABLE 12

COMMITMENT GROUPS

N = 103

Score	Frequency	Stanine	
32	1	1	Low Commitment (LC) N=22
33	2	1	
34	2	1	
37	4	2	
38	3	3	
39	5	3	
40	3	3	
41	2	3	
42	4	4	Medium Commitment (MC) N=57
43	8	4	
44	4	4	
45	7	4	
46	7	5	
47	6	5	
48	7	5	
49	5	5	
50	3	6	
51	4	6	
52	2	6	
53	3	7	High Commitment (HC) N=24
54	1	7	
55	1	7	
56	2	7	
57	3	8	
58	5	8	
59	4	8	
60	1	9	
61	1	9	
62	1	9	
63	1	9	
64	1	9	
67	1	9	

Results of Analyses to Answer Research Questions

Question 1:

Model 1: What is added to the predictive efficiency of Aact and NB by U, D, WA and GT collectively in the prediction of BI?

The regression procedure used to test Model 1 was to drop GT * WA, GT, WA, U and D collectively and compare the reduced model to the full model in omnibus F test. This procedure was repeated for each of nine behavioral intentions. The results of these analyses are given in Table 13.

Table 13 shows that in only one case (ETSG) did the predictor group contribute significantly to the prediction of behavioral intention, and tends to support Fishbein's contention that teachers considered variables about which they had knowledge in responding to BI, Aact and NB. ETSG was the only behavioral intention tested to be significantly better predicted ($P=<.05$) by the addition of the predictor group. However, interpretation of the P value for this analysis provides only limited information. Of greater interest is the size of the R^2 for ETSG which is increased to only .155 by the addition of the predictor group. Because of the small R^2, the decision was made not to continue the analysis to determine which variables were contributing to increased prediction. The range of the R^2's for nine full models is only .033 to .410, and for the reduced models .004 to .347. It should be noted that, with the exception of the R^2 for ETSHAP (.410), the magnitude of the R^2's for the full model for all other behavioral intentions did not exceed .165 (AIHPG). Therefore, the

TABLE 13

RESULTS OF OMNIBUS F TESTS

(N = 103)

	Aact	NB	U	D	WA	GT	GT*WA	R	R^2	R^2Diff.
OOUD	IN	IN	IN	IN	IN	IN	IN	.316	.100	
	IN	IN	OUT	OUT	OUT	OUT	OUT	.154	.024	.076
IFD	IN	IN	IN	IN	IN	IN	IN	.181	.033	
	IN	IN	OUT	OUT	OUT	OUT	OUT	.062	.004	.029
ETSI	IN	IN	IN	IN	IN	IN	IN	.317	.100	
	IN	IN	OUT	OUT	OUT	OUT	OUT	.229	.053	.048
HAP	IN	IN	IN	IN	IN	IN	IN	.328	.107	
	IN	IN	OUT	OUT	OUT	OUT	OUT	.303	.092	.016
ETSHAP	IN	IN	IN	IN	IN	IN	IN	.640	.410	
	IN	IN	OUT	OUT	OUT	OUT	OUT	.589	.347	.063
GBOI	IN	IN	IN	IN	IN	IN	IN	.372	.138	
	IN	IN	OUT	OUT	OUT	OUT	OUT	.277	.077	.061
ETSG	IN	IN	IN	IN	IN	IN	IN	.387	.155	
	IN	IN	OUT	OUT	OUT	OUT	OUT	.074	.005	.145*
AIHPG	IN	IN	IN	IN	IN	IN	IN	.406	.165	
	IN	IN	OUT	OUT	OUT	OUT	OUT	.358	.128	.037
EAVJ	IN	IN	IN	IN	IN	IN	IN	.286	.082	
	IN	IN	OUT	OUT	OUT	OUT	OUT	.228	.052	.030

* Significant at $P < .05$

magnitude of the R^2 is interpretable for only one behavior, ETSHAP, since this is the only BI to obtain a multiple correlation with Aact and NB (.589) greater than .50. In other words, BI is shown to be a function of Aact and NB only for behavior ETSHAP.[1]

Model 2: What is added to the predictive efficiency of BI by OL in the prediction of teacher behavior?

Multiple Regression was used to test the contribution to the prediction of behavior of the variables in Model 2. Table 14 presents the results of this analysis.

TABLE 14

PREDICTION OF TEACHER BEHAVIOR

(N = 103)

Behavior	B = BI		B = BI + OL		
	R	R^2	R	R^2	R^2 Diff.
OOUD	.680	.462	.691	.478	.015
IFD	.608	.369	.616	.380	.011
ETSI	.565	.319	.591	.349	.029**
HAP	.610	.372	.614	.378	.006
ETSHAP	.575	.330	.605	.366	.035**
GBOI	.537	.288	.537	.288	.001
ETSG	.598	.357	.649	.422	.064*
AIHPG	.603	.364	.604	.365	.002
EAVJ	.668	.446	.687	.472	.026 **

* Significant at $P < .05$
** Significant at $P < .01$

An examination of Table 14 indicates that all evidence categories (ETSI, ETSHAP, ETSG) and EAVJ are predicted better with knowledge of OL.

In addition, the range of correlations between B and BI is .54 to .68, with BI accounting for between 29 and 46 percent of the behavior variance.

Question 2:

Is teacher behavior (B) a partial function of perceived difficulty of performing the behavior (D)?

A canonical analysis was performed to consider the two data sets. The first set, Set A, contained the ten B items; the second set, Set B, contained the ten D items. Table 15 presents the canonical correlations associated with each of the ten roots in the canonical analysis. The first root, with a canonical R of .549 is significant at $P = < .05$.

Love and Stewart (1967) have suggested that a strong canonical correlation may be obtained between two functions although these functions may extract only a small portion of variance from the respective data sets. Therefore, they calculated $\overline{R}$, an index of the proportion of variance of Set A predictable from (or redundant with) Set B. The proportion of variance of Set B predictable from Set A can be calculated by reversing the sets and finding $\overline{R}$ to determine the contribution of each of the variables in Sets A and B to the redundancy. In other words, interpretation of the Canonical R needs to be made in consideration of how much variance $\overline{R}$ represents for the two data sets. For the canonical correlations given in Table 15, the redundancy of the behavior items (Set A) given the difficulty items (Set B) was only 13.4%. The redundancy in Set B given Set A was only 12.8%. Because of the low values of the redundancies, a complete canonical analysis was not continued. Although the results indicate that there is some predictive validity in Set A relative to Set B (and conversely), a strong relationship does not exsit between a teacher's behavior and his perception of the difficulty of performing the behavior.

TABLE 15

CANONICAL CORRELATIONS BETWEEN SET A AND SET B

(N = 103)

Root	Canon. R	Canon. R^2	D.F.	Chi. Sq.	P
1	.549	.301	19	33.113	.025*
2	.502	.252	17	26.875	.062
3	.447	.200	15	20.610	.152
4	.394	.155	13	15.636	.271
5	.331	.109	11	10.711	.531
6	.277	.077	9	7.391	.598
7	.182	.033	7	3.117	.874
8	.168	.028	5	2.650	.756
9	.058	.003	3	.315	.956
10	.045	.002	1	.185	.671

* P = < .05

Question 3:

Is prediction of teacher behavior improved when teachers are grouped into High, Medium and Low Commitment groups on their obtained ΣBI scores over that which is obtained when ΣBI and A_o are included as predictors for the total research sample? Specifically, is prediction of a multiple act criterion of teacher behavior (MAC) by a general attitude measure (A_o) and ΣBI improved when teachers are grouped into High, Medium and Low Commitment groups over that which is obtained when ΣBI and A_o are used as predictors for the total research sample?

Table 16 presents the results of the regression procedure to determine the predictive efficiency of ΣBI and A_o. Table 17 shows the correlations between MAC and A_o for the total research sample and for each of the commitment groups.

TABLE 16

$MAC = \beta\Sigma BI + \beta\Sigma A_o$

Total Sample
(N=103)

$\beta\Sigma BI$	βA_o	R	R^2
.478	.094	.522	.273

HC
(N=24)

$\beta\Sigma BI$	βA_o	R	R^2
.118	.099	.168	.028

MC
(N=57)

$\beta\Sigma BI$	βA_o	R	R^2
.063	.076	.107	.011

LC
(N=22)

$\beta\Sigma BI$	βA_o	R	R^2
.226	-.033	.216	.047

TABLE 17

CORRELATIONS OF MAC AND A_o

Total Sample (N = 103)	HC (N = 24)	MC (N = 57)	LC (N = 22)
.283	.123	.087	.046

The results of the analysis indicate that prediction of teacher behavior (MAC) is not improved when teachers are grouped by their overall commitment to workshop objectives. While the multiple correlation of A_o and ΣBI with MAC is .522 ($R^2 = .273$) for the total research sample, multiple correlations ($R = .107$ to .216; $R^2 = .011$ to .047) obtained for each commitment group are much lower. Further, while a correlation of .283 ($P < .01$) between MAC and A_o was obtained for the total research sample, obtained correlations for the commitment groups were all lower.

Question 4:

Are single act teacher behaviors (B) better predicted by (correlated more highly with) an appropriate behavioral intention measure (BI) than by a general attitude measure (A_o), and can A_o predict a multiple act criterion (MAC) better than a single act criterion?

The analysis to answer this question constitutes the major test of the theory in this study. Table 18 presents the correlations between each B and its corresponding BI, and each B, A_o and ΣBI. Table 19 presents the intercorrelations of ΣBI, MAC and A_o.

TABLE 18

CORRELATIONS OF B WITH A_o, ΣBI, BI

(N = 103)

B	A_o	ΣBI	BI
OOUD	.224	.233	.680
IFD	.283	.359	.608
ETSI	.294	.319	.565
HAP	.053	.285	.610
ETSHAP	.059	.306	.575
GBOI	.027	.076	.537
ETSG	.076	.251	.598
AIHPG	.135	.322	.603
EAVJ	.229	.353	.668

TABLE 19

INTERCORRELATIONS OF ΣBI, MAC, A_o

(N = 103)

	ΣBI	MAC	A_o
ΣBI	1.000	.515	.395
MAC		1.000	.283
A_o			1.000

An examination of Tables 18 and 19 shows that while a general attitude measure (A_o) predicts a multiple act criterion (MAC) at .283, seven of the nine single act behaviors (B) obtain lower correlations with A_o and two obtain correlations of about the same magnitude (IFD and ETSI). These results indicate that a general attitude measure can predict a multiple act criterion better than a single act criteria. Further, each single act criterion is better predicted by a general intention measure (ΣBI) than by a general attitude measure, and the multiple act criterion is better predicted by a general intention measure (.515) than a general attitude measure (.283). The range of correlations for B and its corresponding BI is .54 to .68, where the lowest correlation (GBOI) obtained is higher than the highest correlation obtained (B and ΣBI, IFD, .359) in either the B,A_o or B,ΣBI comparisons.

The best predictor of a single act criterion, as Fishbein contends, is its corresponding intention measure.

NOTES: CHAPTER FOUR

1. Because $Aact + NB \neq BI$, no test of the indirect model for the prediction of single act behaviors (B) was conducted. While this may be taken as evidence against the model, another interpretation is possible and will be discussed in Chapter Five.

CHAPTER FIVE

Discussion and Suggestions for Future Research

Discussion of Descriptive Analysis

Teacher Behaviors

An examination of the means and standard deviations of all items used in analyses involving the prediction of single act behaviors (Table 10) reflects the emphasis in the workshops on teacher use of questions to help children explore their own values. Further, training program personnel appear to have been effective in communicating the importance of evaluation (EAVJ) behaviors. However, despite teachers' awareness of supervisors' expectations, their intentions to use these behaviors showed great variability. Further, the low mean obtained on the behavior criterion for EAVJ, when considered in the context of the high variability of both teachers' behavioral intentions and perception of the difficulty of performing EAVJ, indicates that future workshops should provide teachers with training in the use of behavior.

Interestingly, the mean criterion score for GBOI was also low. Both behaviors represent asking children to make conclusions, either from data (GBOI) or beyond the data (EAVJ). In other words, it may be possible for a teacher to have children provide the appropriate inputs upon which to base generalizations and evaluations and still make the generalizations and evaluations for them.

An additional multiple regression analysis was performed to determine how well each single act behavior could be predicted by all other behaviors, that, for example, whether a teacher asks for evaluations can be highly predicted by his behavior in other categories. The results of this procedure are presented in Table 20.

An examination of Table 20 indicates that EAVJ and HAP are best predicted by all other behaviors, with all other behaviors accounting for 32% of EAVJ and HAP behavior variance. Teacher behavior in all other categories accounts for only 19% of the behavior variance of GBOI, however, indicating that although there is a conceptual similarity between GBOI and EAVJ, the behaviors coded in this study do not predict both with equal efficiency.[1]

The conceptual relationship among the behaviors coded in this study and the systems of Sanders (1966), Bloom, et al., (1956) and Gagné (1970) are presented in Illustration 2. Each of the four systems is read horizontally, indicating (at least conceptually) the hierarchical nature of the levels. Sanders (1966, Bloom, et al., (1956) and Gagné (1970) each considers the lowest level of his system (reading from left to right) to be a prerequisite for the next highest level. Evidence categories and asking for alternate inferences, hypotheses and generalizations used in this study are not discrete entries in the illustration since there are no parallel categories represented in the other taxonomies. Illustration 2 is presented to reinforce the position given to evaluation behavior (EAVJ) in taxonomies created by others and to graphically show the behaviors that might be considered prerequisites for higher-order HAP and EAVJ. In order to calculate

TABLE 20

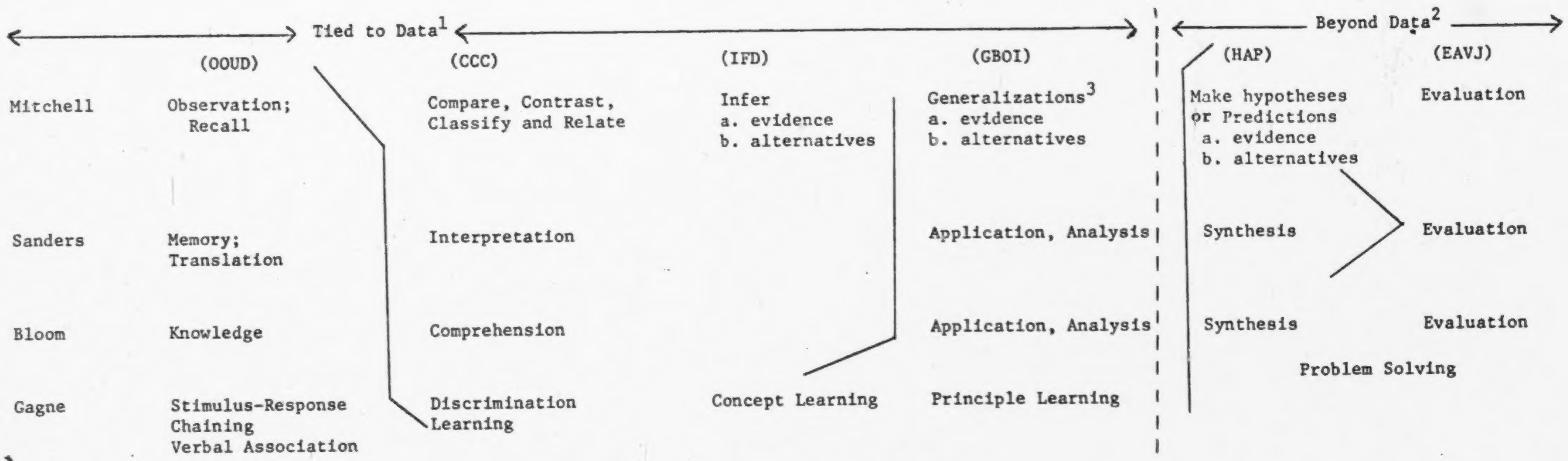
RESULTS OF REGRESSION ANALYSES TO PREDICT EACH SINGLE ACT BEHAVIOR FROM ALL OTHER BEHAVIORS

(N = 103)

	R	R^2
OOUD	.461	.212
CCC	.455	.207
IFD	.419	.175
ETSI	.536	.287
HAP	.566	.320
ETSHAP	.496	.246
GBOI	.437	.191
ETSG	.448	.201
AIHPG	.519	.270
EAVJ	.567	.322

ILLUSTRATION 2

CONCEPTUAL RELATIONSHIP AMONG LEVELS OF QUESTIONS



Tied to Data[1]　　　　Beyond Data[2]

	(OOUD)	(CCC)	(IFD)	(GBOI)	(HAP)	(EAVJ)
Mitchell	Observation; Recall	Compare, Contrast, Classify and Relate	Infer a. evidence b. alternatives	Generalizations[3] a. evidence b. alternatives	Make hypotheses or Predictions a. evidence b. alternatives	Evaluation
Sanders	Memory; Translation	Interpretation		Application, Analysis	Synthesis	Evaluation
Bloom	Knowledge	Comprehension		Application, Analysis	Synthesis	Evaluation
Gagne	Stimulus-Response Chaining Verbal Association	Discrimination Learning	Concept Learning	Principle Learning	Problem Solving	

1. Convergent thinking

2. Creative thinking, divergent thinking

3. Conclusions must follow evidence

the relative importance of each of the coded behaviors in the prediction system described on p. 93-94, the vector of correlations of the predictors with the regression function was computed. Cooley and Lohnes (1971) calculate this vector of correlations (the regression factor structure coefficients) by dividing the vector of predictor-criterion correlations by the multiple correlation coefficient. This procedure de-emphasizes the magnitude of the beta weights and is recommended by the authors because of the tendency of regression weights to fluctuate from sample to sample. Table 21 shows the correlations of the predictors with the regression function for each of the ten behaviors.

The results shown indicate that evidence categories (ETSI, ETSHAP and ETSG) are best predicted by either HAP or EAVJ, or both. Possibly, asking for evidence is a higher-order behavior, utilized primarily by teachers who use other higher-order behaviors. In addition, the relatively high magnitude of the factor structure coefficients of evidence categories when predicting other evidence categories, suggests that asking for evidence may be a generalized behavior. In other words, teachers who ask children to support their ideas at one level of questioning are likely to engage in similar behavior at other questioning levels. Future research should investigate the relationship of asking for evidence behaviors and higher-order hypothesis and evaluation behaviors.

An examination of Table 21 also shows that HAP and ETSHAP obtain low negative coefficents in the prediction of GBOI, while the coefficient for EAVJ is moderate. These results tend to suggest that asking

TABLE 21

CORRELATIONS OF PREDICTORS WITH THE REGRESSION FUNCTION

(N = 103)

	OOUD	CCC	IFD	ETSI	HAP	ETSHAP	GBOI	ETSG	AIHPG	EAVJ
OOUD		.79	.40	.40	.48	.24	.51	.01	.45	.31
CCC	.70		.43	.56	.44	.30	.37	.05	.20	.55
IFD	.44	.47		.64	.30	.33	.50	.15	.51	.73
ETSI	.35	.46	.50		.50	.40	.26	.46	.09	.72
HAP	.39	.36	.23	.53		.73	-.12	.59	.49	.41
ETSHAP	.26	.28	.26	.55	.83		-.23	.57	.45	.18
GBOI	.54	.36	.52	.31	-.16	-.22		.22	.52	.43
ETSG	.01	.04	.13	.55	.73	.62	-.20		-.02	.46
AIHPG	.36	.48	.51	.58	.42	.27	.48	.09		.75
EAVJ	.26	.44	.56	.68	.40	.17	.33	.36	.59	

for conclusions from the data (GBOI) and beyond the data (EAVJ) are different skills. Further, GBOI is not highly predicted by higher-order evidence, hypothesis and evaluation behaviors. Stated in another way, higher-order behaviors may require skills very different from generalization behavior. Several writers (e.g., Bloom, et al., 1956; Sanders, 1966) suggest that higher-order synthesis behavior (of which hypothesis formation is a part) is similar to creative behavior, since synthesis involves the creation of a structure or relationship that did not previously exist. A fruitful area of exploration would be the relationship of teachers' creativity to their use of higher-order questioning behaviors.

The results in Table 21 show that EAVJ is best predicted by IFD, ETSI and AIHPG. The importance of this finding is that asking for inferences (or interpretations) is not considered a higher-order behavior by Sanders (1966) and Bloom, et al. (1956). Possibly, the skills necessary for IFD behavior are most similar to EAVJ. This possibility suggests that a training program which stressed the use of EAVJ behavior might in fact, utilize teachers' skill in asking for inferences from the data as a starting point in a sequence of activities. For example, the mean behavior score of IFD for the research sample is 59.98 (Table 10), whereas the mean EAVJ behavior score is 46.54. If follow-up social studies workshops were planned by the school system to reinforce the use of EAVJ behaviors, one approach to training might be to focus on only IFD and EAVJ. Further, satisfactory performance of IFD might be considered a prerequisite for EAVJ training.

Discussion of Question 1

Discussion of Model 1

Although this study does not constitute a test of Fishbein's model of BI or his indirect method of predicting behavior, the regression procedure (Table 13) provides some support for his contention that other variables about which teachers have knowledge at the time of intention assessment will not contribute to the prediction of behavioral intention above that which the model's basic variables contribute. That Aact + NB $\neq$ BI for eight of nine BI's in this study may be viewed as a failure of the model, since the survey items were initially constructed to measure a specific behavior by Aact, NB, U and D (p. 57-58). Examination of the intercorrelations of each BI and its corresponding Aact and NB (Appendix J) indicate that the intercorrelations among the variables are low. Two possible explanations may be made for the low intercorrelations: (1) teachers intentions (BI) to perform a behavior are not highly related to their feelings (Aact) about performing the behavior, their perception of supervisors' expectations (NB), their perceptions of the utility of the behavior for attaining objectives (U), or their perception of the difficulty of performing the behavior (D); or (2) the wording of the items was not interpreted by the teachers to represent parallel behaviors. The latter explanation is more likely and suggests the utilization of an additional step (in addition to establishing item reliability) in the development of verbal items in the testing of Fishbein's theory, the establishment of parallel wording of items by judges. In other words, in replicating this study, the investigator would, as part of the initial instrument development phase, also ask a panel of judges to group those items which measure the same behavior.

These results also duplicate the findings of a prior study by Mitchell (1971) in which the grade taught did not contribute to the prediction of behavioral intention. The 1971 study utilized only early education teachers (Headstart through Second Grade), and concluded that grade distinctions may not have been appropriate for the sample. In the present study, Kindergarten through Grade Two and Grades Three through Six were the reference group designations. Again the distinctions seem inappropriate and suggest that perhaps elementary teachers be compared with middle school or high teachers in the use of inquiry strategies for value analysis and clarification activities. The finding of no significant contribution of Grade Taught to the prediction of behavioral intention suggests also that workshop personnel might combine the elementary school teachers in a follow-up training program and expect the follow-up training to be relevant for teachers of grades K-6.

Discussion of Model 2

The analysis performed to assess the contribution of OL (whether the teacher is an original participant, O, or a late participant, L) to the prediction of behavior (Table 14) indicates that all evidence categories (ETSI, ETSHAP, ETSG) and EAVJ are predicted significantly better with knowledge of OL. Fishbein's contention that variables intervening between intention and behavioral assessment may contribute to behavioral prediction seems to be supported. The significance of this finding is that although the R^2 differences for the four behaviors range from only .029 to .064 (Table 14, the behaviors most stressed in the workshops, use of evidence and evaluation behaviors, were those upon which the original and late participants could be differentiated. In addition, separate analyses were performed on the four behaviors for each group to determine the means and standard deviations of the B and BI items as well as the correlation between B and BI for each group considered separately. These results are presented in Tables 22 and 23. An examination of Table 22 shows that the O group obtained higher means than the L group for all four behaviors, although BI does not seem to show a similar pattern. The results presented in Table 23 indicate that no pattern for improved behavioral prediction is obtained either for the O or the L groups when each group is considered separately, than is obtained for the total research sample.

That the behavior means are much higher for the O than the L group for all four behaviors is particularly interesting when the BI means are considered. In other words, the O and L groups did not differ as much in their intentions to behave as they did in their actual classroom performance. Possibly, as Fishbein (1972) suggests, people do not tend to volunteer to engage in activities which they consider to be beyond their ability.

The role played by OL in the prediction of behavior may be discussed in two contexts: (1) condition (public/private) for participation; (2) as a psychological variable.

TABLE 22

MEANS AND STANDARD DEVIATIONS FOR O AND L GROUPS ON ETSI, ETSHAP, ETSG, EAVJ

	O (N=65)				L (N=38)			
	B		BI		B		BI	
Behavior	M	S.D.	M	S.D.	M	S.D.	M	S.D.
ETSI	65.05	23.13	5.17	1.77	57.71	23.95	5.00	1.28
ETSHAP	66.09	21.06	5.08	1.76	56.55	22.18	5.03	1.72
ETSG	58.35	24.95	3.31	1.90	49.10	23.32	3.52	1.92
EAVJ	52.12	23.08	4.69	2.01	37.00	19.01	3.71	1.88

TABLE 23

CORRELATIONS OF B AND BI FOR O, L AND TOTAL RESEARCH SAMPLE ON ETSI, ETSHAP, ETSG, EAVJ

Behavior	O (N=65)	L (N=38)	Total Sample (N=103)
ETSI	.665	.332	.565
ETSHAP	.555	.495	.575
ETSG	.611	.633	.580
EAVJ	.641	.652	.668

One possible explanation is that teachers in the L Condition (late participants) did not perceive that they had the same degree of freedom to volunteer or not volunteer. Keisler (1971) suggests that when alternatives are reduced or eliminated, an individual chooses a course of action, not because he elects to choose it, but because other alternatives no longer exist. Teachers who indicated agreement to participate on the cover sheet of the questionnaire had (in a private condition) freedom to volunteer or not. However, teachers with whom the investigator spoke may not have perceived the same degree of freedom, and the condition for them was more public in the sense that commitment to participate had to be made verbally to the investigator in her presence as opposed to a more private commitment in writing.

That OL contributed significantly to behavioral prediction only for the four behaviors stressed in the training program, suggests that although teachers were aware that no school system personnel would have access to the tapes, they may still have associated the investigator's role with the role of the supervisor or some external evaluator. This seems a particularly likely phenomenon since OL contributed to prediction only for the most emphasized behaviors. Perhaps teachers had not deliberately utilized these behaviors prior to the training program and were unsure of their ability to use them. Possibly, all participants were uncertain of their ability to use the behaviors. The low means for the D items (Table 10, col. 6) in comparison with means for other items suggests that, in general, teachers considered all behaviors difficult to use during a social studies discussion. The O group, then, may reflect greater tolerance for uncertainty and greater tolerance for ambiguity regarding others' evaluation of their behavior (Hampton, 1970). Tolerance for ambiguity may be defined in terms of risk-taking behavior (Kagan and Wallach, 1964; Pilisuk, et al., 1964). Teachers who volunteered initially may be more inclined toward risky decision-making. Future research should investigate the variable tolerance for ambiguity and its relation to teacher behavior. Possibly, as Keisler (1971) suggests, opportunity for self-responsibility and new knowledge contributed to the O groups initial agreement to participate, suggesting other variables that might be investigated in relation to teacher behavior, curiosity and self-confidence.

Analyses to test Model 2 reveal other significant data. The range of correlations between B and BI for nine behaviors is .54 to .68. In five studies utilizing Fishbein's theoretical model (p. 40) the range of obtained B,BI correlations was reported to be .211 to .970. All five studies assessed B and BI close in time. None assessed B in the natural behavior setting in which feedback is possible after the performance of the behavior. None utilized a single act criterion sampled by both event and time. Therefore, the correlations obtained for B,BI in this study are considered to be very high because of the length of time between B,BI assessment (about seven weeks), the complex nature of the behavior, the fact that behavior data was collected in a natural setting in which it was not possible to assure complete homogeneity of events, and performance of each behavior by teachers involved feedback on the behavior from children.

Therefore, the results of tesing Model 2 provide strong support for Fishbein's position that single act behaviors can be predicted by an appropriate behavioral intention.

Discussion of Question 2

The index of redundancy ($\overline{R}$) computed in a canonical analysis to consider the relationship of two data sets, Behavior items (Set A) and Difficulty items (Set B) indicate (Table 15) that, in this study, a strong relationship does not exsit between a teacher's observed behavior and his perception of the difficulty of performing the behavior. Possibly, as has previously been suggested (p. 100), the D items were not as behavior specific as the investigator had intended. Therefore, that teachers considered all behaviors except EAVJ difficult to perform and yet scored above a mean of 50 on all behaviors except GBOI and EAVJ (Table 10) is even more important. These results suggest that teachers who consider a task difficult to perform may actually perform well. Possibly, awareness of difficulty increases the amount of effort a teacher affords to preparation for behavior performance. This supposition is further supported by the obtained correlations between B and D (Appendix K). Almost every B is correlated negatively with its D. The consistent negative relationship obtained between the two variables suggests that improved measurement of perceived difficulty might provide teacher trainers with an additional tool upon which to group teachers for training for specific adjectives. Also, it is possible that a non-linear relationship exists between B and D similar to the non-linear relationship found between anxiety and performance (Taylor, 1951; Montague, 1953; Castenada, McCandless and Palmero, 1956) in which varying amounts of perceived difficulty would produce different levels of behavior performance.

Discussion of Question 3

For this study, behavioral intention (ΣBI) was alternately conceptualized as commitment to perform workshop objectives. Although ΣBI may be considered another way of measuring a general attitude (A_o), it was used in this study as an operational definition of overall commitment (or intention) to perform workshop objectives. Three commitment groups were formed to represent (1) High commitment to workshop objectives, (2) Medium commitment to workshop objectives, and (3) Low commitment to workshop objectives. In no case does the correlation between MAC and A_o, or the multiple correlation of ΣBI and A_o in the prediction of MAC for commitment groups (Tables 16 and 17) exceed the correlation of MAC and A_o or the multiple correlation of ΣBI and A_o with MAC for the total research sample. Further, when MAC is predicted by ΣBI alone, the obtained correlation of .515 is higher than the MAC,A_o correlation of .283.

These results indicate that commitment (or intention) does not mediate between attitudes and behavior as Keisler (1971) suggests. Although Fishbein would consider ΣBI a general attitude measure, his contention that behavioral intention (in this case, ΣBI) is the immediate antecedent of behavior seems justified.[2]

The issue of commitment as mediating between attitudes and behavior or as the direct antecedent of behavior is dependent upon the theoretical orientation of the investigator, and as such represents an area of research in which the approach of consistency motivational theorists and behavior-learning theorists differ. Research on commitment is frequently conducted in the context of dissonance theory (e.g., Levie, 1968; Keisler, 1971). That is, in this context, consistency motivational theorists consider commitment as a determinant (motivation) of both attitudes and behavior. For example, Keisler (1971) conducted an experiment in which he hypothesized that different level of commitment groups would yield differences in attitudes as the result of an attack on their attitudes. Subjects were supposed to adjust their attitudes (make them stronger or weaker) to accomodate an attack on them, for supposedly the dissonance produced by the attack would lead subjects to dissonance reduction activities. However, there were no obtained differences in attitudes between two commitment conditions. Dissonance theory does not seem to adequately explain the relationship of commitment to behavior. The results of this study suggest that a behaviorist approach to the study of commitment as the immediate antecedent of behavior might be a fruitful area for future research.

Discussion of Question 4

The results of analyses to test Question 4 constitute the major test of the theory in this study. Further, the results have far-reaching implications for the prediction of behavior, since for the first time in attitude research, an empirically derived explanation for the lack of relationship between "attitudes" and behavior can be presented.

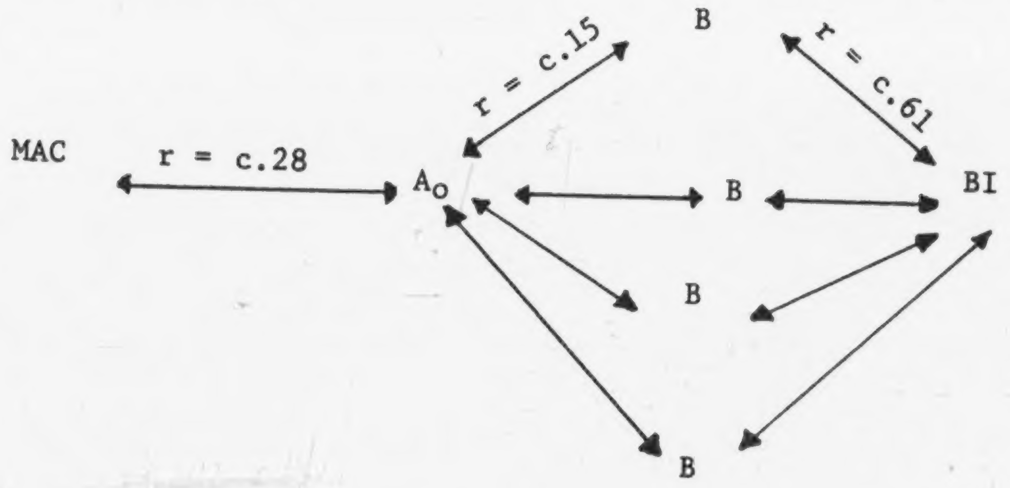
While a general attitude measure (A_o) can predict a multiple act criterion (MAC) at .283, it predicts single acts less well (Tables 18 and 19). Further, any single act is better predicted by a general intention measure (ΣBI) than by a general attitude measure.[3] However, the best predictor of any single act behavior, as Fishbein contends, is its corresponding behavioral intention. These findings are presented graphically in Illustration 3.

Wicker (1969) in his review of the literature seldom found a correlation above .30 between "attitudes" and behavior in the thirty studies he reviewed. These findings are consistent with the findings of other studies reviewed in this paper (e.g., Siebel, 1967; Baker, 1970) and with the findings reported in this study. Further, it is worth pointing out that "almost all of the studies of the attitude-behavior relationship that have been conducted...have attempted to predict one very specific behavioral criterion" (Fishbein, 1972, p. 23) from a general attitude measure.

Although other researchers utilizing Fishbein's intention measure for the prediction of behavior have sometimes obtained higher B,BI correlations than were obtained in this study (p. 40), it should be

ILLUSTRATION 3

PREDICTION OF BEHAVIOR


B
r = c.15
r = c.61
MAC
r = c.28
A_o
B
BI
B
B

recalled that none of these studies contained as complex a behavioral criterion as in this study. Also, a longer period of time elapsed between B,BI assessment in this study than in prior studies.

Therefore, future research in the attitude-behavior relationship should be conducted within a theoretical framework which defines the universe of "attitudes" and behaviors to be measured similarly. If prediction of a pattern of behavior is the concern of the investigator, then the best predictor may be a general "attitude" measure. However, if, in fact, the researcher is concerned with the prediction of single-act behaviors, then an appropriate behavioral intention measure is the best predictor.

Summary and Suggestions for Future Research

A survey of the literature on the relationship of "attitudes" to behavior revealed that few investigations of the attitude-behavior link have been conducted in teacher education. Further, most of those which could be located have been atheoretical with regard to a conceptualization of attitudes and behavior. While studies of attitudes and behavior have been a concern of social psychologists since at least as long ago as LaPiere (1934), the obtained relationship between the two variables has seldom been more than .30. Therefore, this study utilized a theory currently being developed and tested in social psychology for the prediction of teacher behavior following a training program.

The sample of teachers of grades Kindergarten through Six was selected from the total training population by having teachers indicate their willingness to participate in the project. All participants completed a social studies survey designed to measure variables postulated in the attitudinal/behavior model and taped at least 45 minutes of discussion with small groups of children.

From the results of this study, it was concluded that behavioral intention is the immediate antecedent of behavior and that single act behaviors can be predicted by an appropriate behavioral intention. Further, the condition of teacher participation (whether an original or late participant) contributed to the prediction of behavior only for those behaviors stressed by workshop training personnel. Although the attitudinal/behavior model contained four variables in addition to the theoretical model's two basic components, it was shown that consideration of the four additional constructs did not improve the prediction of behavioral intention. Although the obtained R's for the prediction of BI by Aact and NB were lower in this study than would have been expected, the results provide some support for Fishbein's contention that other variables about which teachers have knowledge at the time of intention assessment will not contribute to the prediction of behavioral intention. Because Aact and NB $\neq$ BI, no test of the indirect method of predicting behavior was made in this study.

It was found that a weak relationship exists for the research sample between overt behavior and perception of the difficulty of performing the behavior. In addition, the correlations between the behavior and difficulty items were mostly negative, indicating that teachers perform better on behaviors they consider to be difficult.

The failure of level of commitment group membership to improve the prediction of a multiple act criterion by a general attitude measure suggests that the existence of an underlying motivation which guides both attitudes and behavior is not operable in this study. Further, these results question the traditional stance of the consistency motivational theorists that the same latent variable determines both attitude and behavior.

The results of this study have shown that a general attitude measure can predict a multiple act criterion better than a single act criterion. However, the best predictor of any single act behavior is its corresponding behavioral intention. Therefore, when a traditional measurement approach is used in this study, no better prediction of behavior is obtained than has been obtained by most investigators of the attitude-behavior relationship since LaPiere (1934).

Behavioral prediction from "attitude" is possible under certain conditions. Obtaining behavioral prediction from an "attitude" measure is a function both of the investigator's definitions of "attitude" and "behavior" and the theoretical position which should define the measurement approach.

The low intercorrelations of the survey items obtained in this study suggest that in replicating this study it may be advisable to have judges group those verbal items which represent parallel behaviors. Such a procedure would permit testing Fishbein's theory of BI and his indirect method of predicting behavior. That additional constructs in the attitudinal/behavior model did not contribute greatly to increased behavioral intention prediction indicates that if these findings are validated with another sample a tool for program evaluation may be BI = Aact + NB or B = BI plus intervening variables.

Further, the success of the intention measure in predicting overt behavior may indicate that a means is available for measuring the transfer of training from a teacher workshop to a classroom. For example, the intention measure may serve two related functions: (1) as an indicant of what the teacher will do in the classroom; and, (2) as a diagnostic tool for planning follow-up training sessions to the workshop experience. In other words, it may be possible to group teachers on their BI scores for follow-up training for specific training objectives. If primary research interest is in behavior, the intention measure is probably the most important variable in the theory since its utilization, for practical purposes, does not depend upon the use of Aact and NB as well. However, any research endeavor designed to have a practical application should, at the same time, help to empirically develop theoretical structures. In other words, while BI in this study appears to be the most utilitarian construct, future research in training program evaluation which utilized Fishbein's intention measure should use the research setting to test the theory as well. Continued testing of the theory might also be useful if the objective of a training program was to change behavioral intentions, since Aact is determined by the individual's expectation for desired results and NB depends upon the value placed upon the behaviors by others. In other words, if BI = Aact + NB, the theory suggests environmental conditions which should effect change in behavioral intentions. While some investigators may consider that utilization of a theoretical model as the research base places stringent constraints on the research undertaking, it is likely that better communication of research findings within the research community results if the theoretical framework of the investigation is explicitly stated.

Future research in the attitude-behavior relationship should clearly define the objectives of measurement; i.e., prediction of a single act criterion or a multiple act criterion (pattern of behavior). The importance of this distinction in research undertakings is that identification of the research intent suggests the magnitude of relationships that may be obtained.

Implications for future research on teacher questioning behavior are also suggested by the results of this study. For example, the following questions may be asked in future research:

(1) Can the regression factor structure obtained in the behavior prediction system used in this study be duplicated with another sample of teacher (preferably randomly chosen)?

(2) Is asking for evidence a generalized or a specific behavior; e.g., if teachers are trained to ask for evidence to support inferences, will they also ask for evidence to support other cognitive operations?

(3) Does a teacher who uses higher-order hypothesis and evaluation behaviors also use asking for evidence behavior?

(4) What is the relationship of teachers' creativity to their use of higher-order questioning behaviors?

(5) What is the relationship of the following variables to teacher questioning behavior: Tolerance for ambiguity, curiosity, self-confidence?

(6) Is perceived difficulty of performing a behavior linearly related to overt behavior?

(7) Does training in asking for inferences strengthen teachers' ability to use evaluation behaviors?

(8) Is the magnitude of change in teachers' behavioral intentions and behavior using Fishbein's theory pre and post a workshop experience the same?

(9) If teachers are trained to use questioning behavior for value analysis and clarification activities in the social studies, are they also able to use these behaviors in other curriculum areas; i.e., is there transfer of training in the utilization of a process from the social studies to other content areas?

Finally, if a Teacher Renewal Project were planned by the school system, the results of this study on teacher behaviors for value analysis and clarification activities suggests that the behaviors defined as training program objectives might be part of a set of objectives for a Renewal Center.

NOTES: CHAPTER FIVE

1. In this case, the magnitude of the R^2's for EAVJ and HAP are cited to illustrate that higher-order behaviors are better predicted than other behaviors in this study. In order to obtain an unbiased estimate of R^2 (or a more probable sample value for a subsequent sample, R'^2) for EAVJ and HAP, the following formula was applied to calculate R'^2:

$$R'^2 = 1 - \frac{N-1}{N-p-1}\ (1-R^2)$$

(Tatsuoka, 1969)

where: N = number of subjects

p = number of predictors

The obtained R'^2 (or R^2 corrected for shrinkage, as it is commonly called) for EAVJ and HAP is .257, indicating that an R^2 difference of .065 might be expected if the same investigation was conducted with another sample.

2. For improved prediction of behavior to have been obtained within any one commitment group, the means would have to have been uncorrelated between groups. While a direct test of the correlation of the means was not performed in this study, the results suggest that the magnitude of the correlation of the means of the criterion and predictor (s) were alike.

3. The obtained correlations between ΣBI and B (single act behaviors) may be a function of measurement. B and BI for single act behaviors were highly correlated while other measures correlated with BI to varying degrees. Thus ΣBI may be a better measure of the general attitude than the sum of the various Aact, NB, U and D measures.

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APPENDIX A

STATEMENT TO WORKSHOP PARTICIPANTS

Thank you, Mr. ____________ for giving me this opportunity to speak with your group. Some of you already know me and know that I am working toward my doctorate at Nova University. During the years that I was teaching in the elementary grades before I came to Nova, social studies curriculum development was one of the areas in which I spent much of my time. Therefore, I am particularly interested in the three workshops being conducted in the county this summer. All of you will be using a new social studies text for the first time. I've been working on the development of some social studies materials for class discussions for the last few years. What I need to do now, is find out some ideas you have about the activities you've talked about in the workshop. Actually, I'd like to ask you to assist me in a project I'm working on.by doing two things, filling out a social studies survey - this takes about 20 minutes - and taping some discussions with small groups of children when you're all back and settled with your kids. The survey cover sheet asks if you would be willing to tape three 15-minute social studies discussions within three weeks. If you are willing to make tapes, you'll just check the appropriate box. No one will know who you are but me because you'll have a number which only I will know. No one in the school system will hear the tapes and they'll be returned to you with a copy of the coding scheme I'll use when I listen to your tapes. The taping isn't going to be done for a couple of months, so you and the kids will have a chance to get used to each other. The taping instructions which I will deliver to you will only tell you the week within which to tape a discussion, but you yourself can decide when you actually do it in that week. Also, I'll deliver the tape cassette to you and if you need a recorder, I'll arrange to get one to you. Right now, you are probably thinking that you really don't need to look forward to one more thing to do when you get back to school. I realize this. That's why we aren't going to tape right at the start of school. You may also be thinking about how different you sound on tape - that's true - we all sound different than we imagine. Just remember - only you and I are going to hear the tapes. By the way, it's kind of fun if a group of you from your school agree to participate. Then, if you like, you can help to code each other's tapes when I return them to you. Do you have any questions?

APPENDIX B

SOCIAL STUDIES SURVEY

Social Studies Survey

Please complete the following:

Male_____ Female_____

A. I teach: please check appropriate box (es)

☐ Kindergarten	☐ First Grade	☐ Second Grade
☐ Third Grade	☐ Fourth Grade	☐ Fifth Grade
☐ Sixth Grade		

B. School Situation

☐ Flexible School ☐ Self-contained classroom

☐ Other: Please specify____

C. ☐ I would be willing to tape (audio-tape) three 15 minute social studies discussions with 2 or more children. I understand that you will provide cassettes (1 hour) and instructions for taping, and that the tapes will be returned to me. All taping will be done at the end of _____________ and the beginning of ______________.

I also understand that the tapes will be identified only by a number, and that they will not be available to anyone in the school system.

☐ I do have access to a cassette tape player in my school or at home.

☐ I do not have access to a cassette tape player in my school or at home.

☐ I do not know if there is a cassette tape player in my school.

D. ☐ I would not be willing to make audio-tapes.

Social Studies Survey

Part I

Teachers have very different feelings about teaching methods. Very often these feelings are based upon practical experience. Moreover, what works for one person may not do so for another. The statements which follow are intended to determine how you feel about certain teaching behaviors. There are no right or wrong answers.

Each of the items which follows is based upon a scale. You are to mark the scale by placing an (X) in the space on the scale that most closely relates to your opinions. There are seven spaces on each scale. The spaces on the scale permit you to indicate how strongly you feel about using the teaching method. You are to mark only one (X) on each scale. One possible example of an item follows:

In my classroom

I would .....|.....|.....|.....|.....|.....|..... I would not

let children paint.

If your feeling about using the teaching method is very closely related to one end of the scale, then you would mark the scale as follows:

HERE OR HERE

I would ..X..|.....|.....|.....|.....|.....|..X.. I would not

If your feeling about using the teaching method is quite closely related to one end of the scale, then you would mark the scale as follows:

HERE OR HERE

I would .....|..X..|.....|.....|.....|.....|..X.. I would not

If your feeling about using the teaching behavior is only slightly related to one end of the scale, then you would mark the scale as follows:

HERE OR HERE

I would .....|.....|..X..|.....|..X..|.....|..... I would not

If your feeling about using the teaching behavior is not really related to either end of the scale, or you cannot make up your mind, then you would mark the scale as follows:

HERE

I would .....|.....|.....|..X..|.....|.....|..... I would not

In other words, the further left you place your (X) the more certain you are that you would use the behavior in your teaching; the further to the right you place your (X) the less likely it is that you would use the teaching method.

Please mark only one (X) on the scale for each item.

Please place an (X) in the space on the scale that indicates how strongly you feel about using the teaching methods. Mark only one (X) on each scale.

---

1. **During a social studies discussion with my class**

I would .....|.....|.....|.....|.....|.....|..... I would not

tell children which observations they ought to make from the data.

2. **During a social studies discussion with my class**

I would .....|.....|.....|.....|.....|.....|..... I would not

ask children to raise their hands when they wanted to speak.

3. **During a social studies discussion with my class**

I would .....|.....|.....|.....|.....|.....|..... I would not

ask children questions which require them to compare data they have observed.

4. **During a social studies discussion with my class**

I would .....|.....|.....|.....|.....|.....|..... I would not

praise children for giving the correct answer.

5. **During a social studies discussion with my class**

I would .....|.....|.....|.....|.....|.....|..... I would not

make generalizations for children.

6. **During a social studies discussion with my class**

I would .....|.....|.....|.....|.....|.....|..... I would not

have children point to facts, not opinions, to justify their predictions.

7. **During a social studies discussion with my class**

I would .....|.....|.....|.....|.....|.....|..... I would not

ask children to rephrase their comments.

8. **During a social studies discussion with my class**

I would .....|.....|.....|.....|.....|.....|..... I would not

expect children to make conclusions only from data which they have observed.

Please place an (X) in the space on the scale that indicates how strongly you feel about using the teaching methods. Mark only one (X) on each scale.

---

9. During a social studies discussion with my class

I would .....|.....|.....|.....|.....|.....|..... I would not

give children several appropriate explanations for their predictions.

10. During a social studies discussion with my class

I would .....|.....|.....|.....|.....|.....|..... I would not

tell children the social value of conclusions they have made.

11. During a social studies discussion with my class

I would .....|.....|.....|.....|.....|.....|..... I would not

allow children to stray from the topic at hand.

12. During a social studies discussion with my class

I would .....|.....|.....|.....|.....|.....|..... I would not

interpret for children observations they have made about the data.

13. During a social studies discussion with my class

I would .....|.....|.....|.....|.....|.....|..... I would not

ask children to support their interpretaions with additional facts.

14. During a social studies discussion with my class

I would .....|.....|.....|.....|.....|.....|..... I would not

have a child summarize the main points.

15. During a social studies discussion with my class

I would .....|.....|.....|.....|.....|.....|..... I would not

have children make guesses from facts they have observed, not from their opinions.

16. During a social studies discussion with my class

I would .....|.....|.....|.....|.....|.....|..... I would not

restate what a child has already said.

Social Studies Survey

Part II

Each of the items which follows has four scales. You are to mark each of the four scales by placing an (X) in the space on the scale that most closely relates to your feelings . There are seven spaces on each scale.

As in Part I, the position of your (X) on each scale permits you to indicate how strongly you feel about each teaching method. You are to mark only one (X) on each scale.

One possible example of a question in this section follows:

Letting children paint

harmful .....|.....|.....|.....|.....|.....|..... beneficial
good .....|.....|.....|.....|.....|.....|..... bad
pleasant.....|.....|.....|.....|.....|.....|..... unpleasant
foolish .....|.....|.....|.....|.....|.....|..... wise

In other words, in this section each teaching method can be described in four different ways. Please mark each of the four scales for each item by placing an (X) in the space on the scale that most closely relates to your feelings. You might, for example, mark the above item in the following way:

Letting children paint

harmful .....|.....|.....|.....|..X..|.....|..... beneficial
good .....|.....|.....|.....|..X..|.....|..... bad
pleasant.....|.....|..X..|.....|.....|.....|..... unpleasant
foolish .....|.....|.....|.....|.....|..X..|..... wise

Please mark only one (X) on each of the four scales for each item.

Please mark each of the four scales for each item by placing an (X) in the space on the scale that indicates how strongly you feel about each teaching method. Mark only one (X) on each scale.

---

17. Having children explain observations they make about data

harmful .....|.....|.....|.....|.....|.....|..... beneficial
good .....|.....|.....|.....|.....|.....|..... bad
pleasant .....|.....|.....|.....|.....|.....|..... unpleasant
foolish .....|.....|.....|.....|.....|.....|..... wise

18. Comparing facts for children

harmful .....|.....|.....|.....|.....|.....|..... beneficial
good .....|.....|.....|.....|.....|.....|..... bad
pleasant .....|.....|.....|.....|.....|.....|..... unpleasant
foolish .....|.....|.....|.....|.....|.....|..... wise

19. Allowing children to always make their own generalizations

harmful .....|.....|.....|.....|.....|.....|..... beneficial
good .....|.....|.....|.....|.....|.....|..... bad
pleasant.....|.....|.....|.....|.....|.....|..... unpleasant
foolish .....|.....|.....|.....|.....|.....|..... wise

20. Using textbooks

harmful .....|.....|.....|.....|.....|.....|..... beneficial
good .....|.....|.....|.....|.....|.....|..... bad
pleasant .....|.....|.....|.....|.....|.....|..... unpleasant
foolish .....|.....|.....|.....|.....|.....|..... wise

21. Giving children facts to support their interpretations of the data

harmful .....|.....|.....|.....|.....|.....|..... beneficial
good .....|.....|.....|.....|.....|.....|..... bad
pleasant .....|.....|.....|.....|.....|.....|..... unpleasant
foolish .....|.....|.....|.....|.....|.....|..... wise

22. Gathering data for children

harmful .....|.....|.....|.....|.....|.....|..... beneficial
good .....|.....|.....|.....|.....|.....|..... bad
pleasant .....|.....|.....|.....|.....|.....|..... unpleasant
foolish .....|.....|.....|.....|.....|.....|..... wise

Please mark each of the scales for eacn item by placing an (X) in the space on the scale that indicates how strongly you feel about each teaching method. Mark only one (X) on each scale.

---

23. Making predictions for children from facts they have already observed

harmful .....|.....|.....|.....|.....|.....|..... beneficial

good .....|.....|.....|.....|.....|.....|..... bad

pleasant .....|.....|.....|.....|.....|.....|..... unpleasant

foolish .....|.....|.....|.....|.....|.....|..... wise

24. Evaluating children's achievement of objectives

harmful .....|.....|.....|.....|.....|.....|..... beneficial

good .....|.....|.....|.....|.....|.....|..... bad

pleasant .....|.....|.....|.....|.....|.....|..... unpleasant

foolish .....|.....|.....|.....|.....|.....|..... wise

25. Giving children more than one explanation for facts they have observed

harmful .....|.....|.....|.....|.....|.....|..... beneficial

good .....|.....|.....|.....|.....|.....|..... bad

pleasant .....|.....|.....|.....|.....|.....|..... unpleasant

foolish .....|.....|.....|.....|.....|.....|..... wise

26. Having children judge the social value of consequences they have predicted

harmful .....|.....|.....|.....|.....|.....|..... beneficial

good .....|.....|.....|.....|.....|.....|..... bad

pleasant .....|.....|.....|.....|.....|.....|..... unpleasant

foolish .....|.....|.....|.....|.....|.....|..... wise

27. Asking children to give facts to support their conclusions

harmful .....|.....|.....|.....|.....|.....|..... beneficial

good .....|.....|.....|.....|.....|.....|..... bad

pleasant .....|.....|.....|.....|.....|.....|..... unpleasant

foolish .....|.....|.....|.....|.....|.....|..... wise

28. Having children support their interpretations with data, not opinions

harmful .....|.....|.....|.....|.....|.....|..... beneficial

good .....|.....|.....|.....|.....|.....|..... bad

pleasant .....|.....|.....|.....|.....|.....|..... unpleasant

foolish .....|.....|.....|.....|.....|.....|..... wise

Part III

Each of the items which follows is based upon a scale. You are to mark the scale by placing an (X) in the space on the scale that most closely relates to your opinions. There are seven spaces on each scale.

The position of your (X) on the scale permits you to indicate how probable you believe the statement to be. You are to mark only one (X) on each scale. One possible example of an item in this section follows:

> I personally think that during a social studies discussion I should allow some children to paint if they want to.

probable .....|.....|.....|.....|.....|.....|..... improbable

In other words, the further left you place your (X) the more probable you believe the item to be; the further to the right you place your (X) the less probable you consider the item.

Please mark only one (X) on the scale for each item.

29. I personally think that during a social studies discussion I should let children know which facts ought to be observed.

probable .....|.....|.....|.....|.....|.....|..... improbable

30. During a social studies discussion with my class, social studies supervisors expect me to provide children with facts to justify their predictions.

probable .....|.....|.....|.....|.....|.....|..... improbable

31. During a social studies discussion with my class, social studies supervisors expect me to use the textbook as reference material.

probable .....|.....|.....|.....|.....|.....|..... improbable

32. During a social studies discussion with my class, social studies supervisors expect me to let children make their own evaluation of a problem situation.

probable .....|.....|.....|.....|.....|.....|..... improbable

Please place an (X) in the space on the scale that most closely relates to your opinions. Mark only one (X) on each scale.

---

33. I personally think that during a social studies discussion I should give children facts to support their interpretation of the data.

probable .....|.....|.....|.....|.....|.....|..... improbable

34. During a social studies discussion in my class, social studies supervisors expect me to have children predict consequences from data they have observed, not from their opinions.

probable .....|.....|.....|.....|.....|.....|..... improbable

35. I personally think that during a social studies discussion I should test the children on what they know.

probable .....|.....|.....|.....|.....|.....|..... improbable

36. I personally think that during a social studies discussion I should suggest interpretations that ought to be made about the data.

probable .....|.....|.....|.....|.....|.....|..... improbable

37. During a social studies discussion with my class, social studies supervisors expect me to give children facts to support interpretations they ought to make about the data.

probable .....|.....|.....|.....|.....|.....|..... improbable

38. I personally think that during a social studies discussion I should have children judge the social significance of predictions they have made.

probable .....|.....|.....|.....|.....|.....|..... improbable

39. During a social studies discussion with my class, social studies supervisors expect me to gather data for children.

probable .....|.....|.....|.....|.....|.....|..... improbable

40. I personally think that during a social studies discussion I should ask children to provide facts and opinions to justify predictions they have made.

probable .....|.....|.....|.....|.....|.....|..... improbable

41. During a social studies discussion with my class, social studies supervisors expect me to turn the discussion completely over to children.

probable .....|.....|.....|.....|.....|.....|..... improbable

Please place an (X) in the space on the scale that most closely relates to your opinions. Mark only one (X) on each scale.

---

42. During a social studies discussion with my class, social studies supervisors expect me to always have children supply their own meanings for facts.

probable .....|.....|.....|.....|.....|.....|..... improbable

43. During a social studies discussion with my class, social studies supervisors expect me to give children facts to support their conclusions.

probable .....|.....|.....|.....|.....|.....|..... improbable

44. During a social studies discussion with my class, social studies supervisors expect me to require children to compare and contrast data.

probable .....|.....|.....|.....|.....|.....|..... improbable

45. I personally think that during a social studies discussion I should let children contribute personal experiences.

probable .....|.....|.....|.....|.....|.....|..... improbable

46. I personally think that during a social studies discussion I should always have children interpret the data.

probable .....|.....|.....|.....|.....|.....|..... improbable

47. During a social studies discussion with my class, social studies supervisors expect me to suggest conclusions children ought to make about the data.

probable .....|.....|.....|.....|.....|.....|..... improbable

48. I personally think that during a social studies discussion I should always ask children to give several explanations for observations they have made.

probable .....|.....|.....|.....|.....|.....|..... improbable

49. During a social studies discussion with my class, social studies supervisors expect me to try to make more than one inference for children from the same bit of information.

probable .....|.....|.....|.....|.....|.....|..... improbable

50. I personally think that during a social studies discussion I should work with no more than ten children.

probable .....|.....|.....|.....|.....|.....|..... improbable

Please place an (X) in the space on the scale that most closely relates to your opinions. Mark only one (X) on each scale.

---

51. I personally think that during a social studies discussion I should ask children to examine and compare all data.

probable .....|.....|.....|.....|.....|.....|..... improbable

52. I personally think that during a social studies discussion I should suggest generalizations children ought to make from the data.

probable .....|.....|.....|.....|.....|.....|..... improbable

53. I personally think that during a social studies discussion I should set up a role-playing situation for children.

probable .....|.....|.....|.....|.....|.....|..... improbable

54. I personally think that during a social studies discussion I should ask children to justify their conclusions with both facts and opinions.

probable .....|.....|.....|.....|.....|.....|..... improbable

55. During a social studies discussion with my class, social studies supervisors expect me to use the text as a guide.

probable .....|.....|.....|.....|.....|.....|..... improbable

Social Studies Survey

Part IV

Each of the items which follows is based upon two scales. Please place an (X) in the space on scale (1) that indicates how useful you feel the teaching method to be in achieving workshop objectives for social studies discussions. Please place an (X) in the space on scale (2) that indicates how difficult you feel it is to use the teaching method in your class.

In other words, the position of your (X) on scale (1) indicates how useful you feel the teaching method to be in achieving workshop objectives for social studies discussions. The position of your (X) on scale (2) indicates how difficult you feel it is to use the teaching method in your class. One possible example of an item in this section follows: Asking children to paint

) useful ...|...|...|...|...|...|...not useful (2)difficult...|...|...|...|...|...|...not difficult

Please mark an (X) in the space on scale (1) that most closely relates to how useful you feel the teaching method to be in achieving workshop objectives for social studies discussions. Please mark an (X) on scale (2) that most closely relates to how difficult you feel it is to use the teaching method in your class.

---

56. Asking questions to help children learn their own values

(1) useful .....|.....|.....|.....|.....|.....|..... not useful

(2) difficult .....|.....|.....|.....|.....|.....|..... not difficult

57. Asking children to gather all data during the discussion

(1) useful .....|.....|.....|.....|.....|.....|..... not useful

(2) difficult .....|.....|.....|.....|.....|.....|..... not difficult

58. Asking children to give more than one explanation of the data

(1) useful .....|.....|.....|.....|.....|.....|..... not useful

(2) difficult .....|.....|.....|.....|.....|.....|..... not difficult

59. Asking children to compare and contrast all data during the discussion

(1) useful .....|.....|.....|.....|.....|.....|..... not useful

(2) difficult .....|.....|.....|.....|.....|.....|..... not difficult

60. Asking children to support their conclusions with facts, not opinions

(1) useful .....|.....|.....|.....|.....|.....|..... not useful

(2) difficult .....|.....|.....|.....|.....|.....|..... not difficult

61. Asking children to make all interpretations of the data

(1) useful .....|.....|.....|.....|.....|.....|..... not useful

(2) difficult .....|.....|.....|.....|.....|.....|..... not difficult

62. Asking children to make all the generalizations during the discussion

(1) useful .....|.....|.....|.....|.....|.....|..... not useful

(2) difficult .....|.....|.....|.....|.....|.....|..... not difficult

63. Asking children to make all the predictions during the discussion

(1) useful .....|.....|.....|.....|.....|.....|..... not useful

(2) difficult .....|.....|.....|.....|.....|.....|..... not difficult

64. Asking children to support their predictions with facts, not opinions

(1) useful .....|.....|.....|.....|.....|.....|..... not useful

(2) difficult .....|.....|.....|.....|.....|.....|..... not difficult

65. Asking children to support all interpretations of the data with facts

(1) useful .....|.....|.....|.....|.....|.....|..... not useful

(2) difficult .....|.....|.....|.....|.....|.....|..... not difficult

APPENDIX C

TAPING INSTRUCTIONS

Social Studies Project

Instructions for Taping

Dear Participant,

Your willingness to cooperate in this project is greatly appreciated.

As I indicated to you during the workshop, I am delivering a 1 hour tape cassette (30 minutes on each side) to you. Following are instructions for taping three 15-minute discussions with two or more children. The discussions may be based on activities in the social studies text, but need not be. Any discussion you have with your children that may fit under the broad term "social science" or "social studies" is suitable.

Instructions for Taping

Listed below is the schedule for taping three 15-minute discussions.

Discussion 1:*

1. To be taped during the week of ____________________________.
2. Place cassette in recorder with side ① face up.
3. Stop recorder after 15 minutes.
4. The tape is now ready for you to tape discussion 2. In other words, discussion 2 will begin immediately after discussion 1 on side ① of the cassette.

Discussion 2:*

1. To be taped during the week of ____________________________.
2. Place cassette in recorder with side ① face up. You are beginning discussion 2 immediately after discussion 1 on side ① of the tape cassette.
3. Discussion 2 will use up the remainder of side ① of the cassette.

Discussion 3:*

1. To be taped during the week of ____________________________.
2. Place cassette in recorder with side ② face up.
3. Stop recorder after 15 minutes.
4. Replace cassette in plastic container. I will collect tapes on ____________.

Once again, let me thank you for your participation. Your cassette will be returned to you with the coding scheme I will use. A meeting of all participants will be arranged to discuss the tapes and the coding.

Sincerely,

Marlene

Marlene Mitchell

* Keep the microphone close to your own voice during the discussions.

APPENDIX D

REVISED TAPING INSTRUCTIONS

Social Studies Project

Dear Participant,

The week of ________________ is the final week of taping. You tape the third discussion with two or more children on side ② of the tape cassette this week. You have 30 minutes of recording time on this side. Instead of stopping the recorder at the end of 15 minutes for the third discussion, please let your discussion go as long as possible, or until side ② is used up.

Therefore, please follow these revised instructions for taping the third social studies discussion:

Revised Instructions*
for discussion 3, to
be made week of ____________

1. Do not stop recorder after 15 minutes.
2. Allow discussion to be recorded (on side ② of tape cassette) until discussion is completed/or to end of tape, whichever is first.
3. I will collect your tape on ____________________.

* Keep the microphone close to your own voice during the discussion.

Again, many thanks for your cooperation. I look forward to seeing you on

________________.

Sincerely,

Marlene

Marlene Mitchell

APPENDIX E

CODING SHEET

CODER #____________ TEACHER #____________

	Disc. 1					Disc. 2					Disc. 3													
BEHAV. CAT.	5	10	15	T.1	$\frac{+}{T}$	20	25	30	T.2	$\frac{+}{T}$	35	40	45	50	55	60	T.3	$\frac{+}{T}$	A T.+	B T.-	C T+,-	D $\frac{+}{T}$	E $\frac{-}{T}$	F $\frac{(+)-(-)}{T}$
OOUD 1																								
-1																								
CCC 2																								
-2																								
IFD 3																								
-3																								
ETSI 4																								
-4																								
HAP 5																								
-5																								
ETSHAP 6																								
-6																								
GBOI 7																								
-7																								
ESTG 8																								
-8																								
AIHPG 9																								
-9																								
EAVJ 10																								
-10																								
TOTALS																								

TIME:

Disc. 1 = ____________

Disc. 2 = ____________

Disc. 3 = ____________

APPENDIX F

CODING MANUAL

CONTENTS:

DESCRIPTION OF CODED CATEGORIES p. 145 to 159
CODED 15 MINUTE DISCUSSION p. 160 to 170

Description of Coded Categories

The following categories are coded on two dimensions; either Teacher Asks or Teacher Gives. Only teacher behaviors are coded. The coded behaviors are only those behaviors which represent the ten categories. All of the behaviors which follow are workshop objectives, and objectives stated in Rationale for the Social Studies (1971). The emphasis is on having children use evidence, value rationality and arrive at their own generalizations and values based on evidence. This scheme looks only at one class of values, procedural, which have to do with the process whereby the child explores and arrives at his own substantive values.

Behaviors

1. Observations of Units of Data (OOUD)

    1a. Teacher asks children to give units of data:

    facts, recall, summarization, clarification.

    1b. Teacher gives units of data:

    facts, recall, summarization, clarification.

2. Compare, Contrast, Classify (CCC)

    2a. Teacher asks children to relate, compare, contrast units of data:

    includes classifying data.

    2b. Teacher makes relationships, comparisons, and contrasts units of data;

    including classifying data.

3. Inferences From Data (IFD)

3a. Teacher asks children to make inferences from units of data;

or from categorizations of units of data; e.g., reasons for events, meaning of units of data.

3b. Teacher makes inferences from units of data;

or from categorizations of units of data; e.g., reasons for events, meaning of units of data.

4. Evidence to Support Inferences (ETSI)

4a. Teacher asks children to give evidence to support inferences, comparisons, contrasts:

evidence is factual; that is, supported by data.

4b. Teacher gives evidence to support inferences, comparisons, contrasts:

evidence is factual; that is, supported by facts.

5. Hypotheses and Predictions (HAP)

5a. Teacher asks children to make hypotheses or predictions:

or to identify hypotheses or unstated assumptions.

5b. Teacher makes hypotheses or predictions:

or identifies hypotheses or unstated assumptions.

6. Evidence to Support Hypotheses and Predictions (ETSHAP)

6a. Teacher asks children to give evidence to support hypotheses or predictions:

evidence may be based on units of data or other evidence which child provides.

6b. Teacher gives evidence to support hypotheses or predictions:

evidence is based on units of data or other evidence which teacher provides.

7. Generalizations Based on Inferences (GBOI)

7a. Teacher asks children to make generalizations based on inferences from units or categorizations of units of data, or asks children to define a concept using data and inferences that they may already have.

7b. Teacher gives generalizations based on inferences from units or categorizations of units of data, or defines a concept using data and inferences which he provides, or which have been provided by the children.

8. Evidence to Support Generalizations (ETSG)

8a. Teacher asks children to give evidence to support generalizations: (and evaluations).

8b. Teacher gives evidence to support generalizations: (and evaluations).

9. Alternate Inferences, Hypotheses, Predictions, Generalizations (AIHPG).

9a. Teacher asks children to give alternative hypotheses, predictions, generalizations, or inferences;

procedures for testing alternatives would be the same as 6 and 8 and 4; would be coded in these categories.

9b. Teacher gives alternative hypotheses, predictions, generalizations, or inferences.

procedures for testing alternatives would be the same as 6 and 8 and 4; would be coded in these categories.

10. Evaluation and Value Judgment (EAVJ)

10a. Teacher asks children to evaluate (for some purpose; e.g. accuracy, significance, appropriateness, personal worth) the value of alternatives, units of data, predictions, etc;

evidence to support these are coded in category 7.

10b. Teacher makes evaluations (for some purpose; e.g., accuracy, significance, appropriateness, personal worth) the value of alternatives, units of data, predictions, etc.:

evidence to support these are coded in category 7.

Unit of Coding

A thought unit; which may be a group of words, a sentence, or a group of sentences. Extraneous verbal behavior of the teacher, not related to the ten items above, will not be coded (e.g., acknowledgement of a child's statement (uh-huh), repeating verbatim, etc.). Examples of behavior are presented in two ways: in context, and questions and statements out of context.

I. In-Context

1. Observations of Units of Data (OOUD)

1a. Teacher asks children to give units of data.

T: Take a look at the picture again. Does each one have a nose?/
(S: Yes.)
T: How many noses does each one have?/
(S: One.)
T: Do they each have eyes?/
(S: Yes.)
T: How many eyes do they have?/
(S: Two.)
T: Do they each have a chin?/
(S: Yes.)
T: Do each of you have a chin?/

1b. Teacher gives units of data.

(T: What color is their hair? Laurie.
S: Brown.
T: They're both brown but what's different about it? Something's different - you're right.
S: I know. I know. His hair's short and her's is long.
T: They're both the same color but different lengths.)/ The boy has short hair./ The girl has long hair./

2. Compare, Contrast, Classify (CCC)

2a. Teacher asks children to relate, compare, contrast units of data.

T: (Let's take a look at page eight, the first picture at the top. This is Sue and Paul. Do you see them?) Can anyone tell me how they're alike?/

(T: We've been discussing children and what makes them different and what makes them the same. Let's look at our picture here of Fred. This is Fred.) Does anybody know anyone who looks Fred?/

2b. Teacher makes relationships, comparisons, and contrasts units of data.

(T: Look at the picture and see if you can tell me something that's alike. Something they have that's the same. Tony.)
T: They each have hair don't they, Tony?/

3. Inferences From Data (IFD)

3a. Teacher asks children to make inferences from units of data, or from categorizations of units of data.

T: (Is Cathy's and Harry's hair different from Sue and Paul's?
S: Yes.
T: How is it different?
(S: Their hair's colored.)
T: What do you mean, their hair's colored?/ ... (c.f. content for 7b).

3b. Teacher makes inferences from units of data or from categorizations of units of data.

(S: Their clothes aren't the same.
T: Yes, their clothes are different.) Maybe they come from different places./

(S: Because one's bigger than the other.)
T: But they're both the same person./ (When do you think this picture was taken or which picture was taken first, Eddie?)

4. Evidence to Support Inferences (ETSI)

4a. Teacher asks children to give evidence to support inferences, comparisons, contrasts.

(S: They both have orange and they both have feet and legs.
T: Can you see their feet and legs in the picture, Laurie?) Then how do you know they have feet and arms and legs?
(S: I can see the arms.)
T: How do you know they have feet and legs though if you can't see them in the picture?

(T: Is their hair the same color?
S: Yes/No.
T: Some say yes, some say no. Who says no?) Daryl, why isn't their hair the same?/ What do you see different?

4b. Teacher gives evidence to support inferences, comparisons, contrasts.

T: (And this is Fred too!) One picture shows Fred when he was a baby./ The other shows him grown-up./

5. Hypotheses and Predictions (HAP)

5a. Teacher asks children to make hypotheses or predictions.

(T: Can you drive a car?
S: No.)
T: When will you learn how to drive a car?/

T: Now, what would you do if you had the power, what would you do to curb or stop drug abuse?/ The question is, if you were somebody in power, somebody in leadership, what would you do to stop drugs?/

5b. Teacher makes hypotheses or predictions.

(S: Well, sometimes you use them when you don't need to use them, and sometimes they take them just for the fun of it, and sometimes you don't have to take them unless the doctor gives them to you for a special reason.)
T: In the event that someone was on this stuff and they shouldn't be there's a good possibility that something could happen to them and somebody could get hurt./

6. Evidence to Support Hypotheses and Predictions (ETSHAP)

6a. Teacher asks children to give evidence to support hypotheses or predictions.

(S: I'd try to stop them, people from using them without need and not to use them unless the doctor tells them to use them for some certain need.)
T: How would you do that?/
(S: I really don't know.
S: I wouldn't even let the doctors use the drugs that are bad for you because some drugs that are good can be bad.)

6b. Teacher gives evidence to support hypotheses or predictions.

(S: Pretty soon the President's going to have to do it otherwise there's going to be nothing left on this world to live on. They'll be no people no land.)
T: To do this we're going to have to have federal legislation, federal control and federal force./

7. Generalizations Based on Inferences (GBOI)

7a. Teacher asks children to make generalizations based on inferences from units or categorizations of units of data, or asks children to define a concept using data and inferences that they may already have.

T: So we have two legal drugs, and we have a lot of other drugs that doctors can prescribe,) but what is the key word?/
(S: Abuse.)

7b. Teacher gives generalizations based on inferences from units or categorizations of units of data, or defines a concept using data and inferences which he provides or have been provided by the children.

(T: How is it different?
S: They're not the same color.
T: What color are Harry and Cathy? What color is their skin?
S: Dark skin.
T: They have dark skin. What color is Sue and Paul?
S: White.
T: They have white skin. What makes them alike?

S: They both have hair and they both have noses
and they both have eyes and mouth.)
T: They're people, aren't they?/

8. Evidence to Support Generalizations (ETSG)

8a. Teacher asks children to give evidence to support generalizations: (and evaluations).

(S: He walks around with me sometimes and goes to the store with me sometimes.)
T: Do you like him for other reasons? What other reasons?/ Why do you like him?/ Do you like something else about him that you can't see?/

8b. Teacher gives evidence to support generalizations: (and evaluations).

(T: We get back to the fact that we need national or international controls on the big corporations.
S: We could stop polluting the air and waters that we live in or we could start cleaning up.
T: This is the point I'm making now. You get down to personal level then.) If you worry about you and I worry about me then nobody has to worry about anybody if the federal government's going to take care of the businesses./

9. Alternate Inferences, Hypotheses, Predictions, Generalizations (AIHPG).

9a. Teacher asks children to give alternative hypotheses, predictions, generalizations, or inferences.

T: We'll start and go all the way around the table and we'll start with Michael./
(S: I'd make people stop just giving away drugs that people need, and if they just have a little cold or something to give them pills or something to take.
S: I'd tell them to take all the drugs off and not sell them, but only sell them to doctors for medical use, etc.)

T: (What is pollution?
S: I think that pollution is what people do to this world that that isn't very good. They throw trash in the sea, they throw trash everywhere and factories are polluting the air and planes let out this exhaust and are polluting the air.

S: I think it's a dirty thing that us humans have put all over the earth.)
T: Tom, do you have anything else to add to that?/

9b. Teacher gives alternative hypotheses, predictions, generalizations, or inferences.

(S: I'll pick up stuff when I see it when I'm playing or if I see it when I'm working I'll pick it up. Like the lady said in Ann Launders column don't throw away any things. Buy returnable things. Ask your mothers and father so they start buying low or no phosphate detergents. Start keeping a lot of waste cleaned up a little bit.
S: On the weekend, if I see any paper anywhere, I'll pick it up so if someone else sees me they might do it too. If someone else sees them they'll do it.
T: Yes, but is this picking up of paper that important?) I think possibly that we should look for something we can do to contribute to the whole, like keeping our water pure./

10. Evaluation and Value Judgment (EAVJ)

10a. Teacher asks children to evaluate (for some purpose; e.g., accuracy, significance, appropriateness, personal worth) the value of alternatives, units of data, predictions, etc.

(T: How old are you usually when you get your license?
S: Seventeen.
T: Seventeen, sixteen, somewhere around there. What can you do now? This is a real thinking question. I want you to think real hard.) What can you do now that you couldn't do before?/ Do you think it's better being grown-up.../

10b. Teacher makes evaluations (for some purpose; e.g., accuracy, significance, appropriateness, personal worth) the value of alternatives, units of data, predictions, etc..

(S: If I was President or anyone who could run half of the United States I would make sure that no drugs would come into the United States. If the doctors have them it's OK. If they get it someplace where they have permission to get it, it's alright, but there shouldn't be any more shipping of drugs into the United States.)
T: Yes, you're absolutely right Randy./ Our biggest problem is that people can get illegal things into this country./

II. Out-of-Context

1. Observations of Units of Data (OOUD)

1a. Teacher asks children to give units of data.

1. Tell me what you found in your trash can.
2. What else do you see?
3. What else did you find?
4. What kinds of things are shown on the paper?
5. What other things did you see on your walk?
6. Do any of you know policemen in your neighborhood?
7. What is the boy in the picture feeding the cat?
8. Where do the Eskimos live?
9. What did we read about yesterday?

1b. Teacher gives units of data.

1. You already told me one. You said orange.
2. She lives in Ghana.
3. You see two children in the picture.
4. The Eskimos live in the Artic Circle.
5. So, we talked about what mothers do and what you do to help.
6. To summarize, then, we have discussed four things that are in our environment; schools,/ churches,/ homes,/ shopping centers./

2. Compare, Contrast, Classify (CCC)

2a. Teacher asks children to relate, compare, contrast units of data.

1. Which piece of paper is longer?
2. Can you find all of those people in the picture who are dressed alike?
3. Can you group the things on the board in any way?
4. Are flowers and trees the same?
5. What differences are there between Eskimo homes and ours?
6. Are the two girls alike or different?
7. How would you classify hair color, as a physical or cultural trait?
8. Which school is oldest?
9. Look around. Can you find things in your school environment that you don't have in your home environment?
10. In what way is she different from you?
11. Who can tell me something else that has a ring around it?

2b. Teacher makes relationships, comparisons, and contrasts units of data.

1. Well, obviously this color is brighter than the other one.
2. Flowers and trees are plants.
3. Both children have the same color clothes.
4. They have different homes from ours.

3. Inferences From Data (IFD)

3a. Teacher asks children to make inferences from units of data, or from categorizations of units of data.

1. What do you think that tells you about what they did yesterday?
2. Any ideas what the carbon paper is in there for?
3. What does that tell you?
4. Who thinks he knows what they are?
5. What does that tell you about what somebody did?
6. Why do you think the boy is jumping?
7. What is it used for?
8. What does the blue in the map key stand for?
9. Do you think Fred is hurt?

3b. Teacher makes inferences from units of data or from categorizations of units of data.

1. Fred is crying because he's hurt.
2. You can see from the picture that they live in Japan.
3. They are dressed that way because they are slaves.
4. The four people in the picture are one family.

4. Evidence to Support Inferences (ETSI)

4a. Teacher asks children to give evidence to support inferences, comparisons, contrasts.

1. What did you find that makes you think it was in science?
2. What else would tell you they were smoking?
3. If the pink stands for hotels, how many hotels do you see on the map?
4. How do you know which school is oldest?
5. Why isn't their hair the same color?
6. (Do we do the same thing in music as in library?) Why?

4b. Teacher gives evidence to support inferences, comparisons, contrasts.

1. The dress she's wearing tells you that she doesn't have much money.
2. The papers at the bottom of the basket tell you what they did first.
3. Their hair color is different because the woman on the right dyed hers.

5. Hypotheses and Predictions (HAP)

5a. Teacher asks children to make hypotheses or predictions.

1. Can you guess what will happen if you take it apart?
2. Why do you suppose they did that?
3. What do you think would happen if he fell off the slide?
4. How can we change our community to make it more liveable in the future?
5. What can we do to solve the problem?
6. What are we going to do about these pencils?
7. What are we going to do about it?
8. Is it possible to change cultural traits?
9. Who do you think was responsible for teaching Chandra all these things she had to learn?

5b. Teacher makes hypotheses or predictions.

1. Maybe someday you'll be a dancer.
2. If he fell off the slide he'd probably break his leg.
3. We can solve the problem by working in groups.
4. We might form a committee here at school to visit the homes in our neighborhood.

6. Evidence to Support Hypotheses and Predictions (ETSHAP)

6a. Teacher asks children to give evidence to support hypotheses or predictions.

1. How do you know that will happen?
2. Any other reasons for supposing they will leave the old people?
3. (Suppose you were in Eskimo country) What would you do to make yourself more comfortable there?

6b. Teacher gives evidence to support hypotheses or predictions.

1. The Eskimos did just that and it was very helpful.
2. Many people in our school would join in such a campaign.
3. They can't drag the old people across the snow.

7. Generalizations Based on Inferences (GBOI)

7a. Teacher asks children to make generalizations based on inferences from units or categorizations of units of data, or asks children to define a concept using data and inferences that they may already have.

1. (You've told me what you've found, and what these things tell you.) Now tell me what kind of grade level do you think this comes from?
2. Are you always sick when you go to the doctor?
3. What is a community?
4. What does the word culture mean?
5. What does it mean to be an individual?
6. What can you say then about what we've talked about?

7b. Teacher gives generalizations based on inferences from units or categorizations of units of data, or defines a concept using data and inferences which he provides or have been provided by the children.

1. Everything around us is our environment.
2. This is true of people all over the world.
3. Globes are used to represent the earth.
4. The main point of our discussion has been that all drugs are not bad,/ that the abuse of drugs is our biggest problem./

8. Evidence to Support Generalizations (ETSG)

8a. Teacher asks children to give evidence to support generalizations: (and evaluations).

1. Why do we make rules?
2. How do you know a mother feels happy when a baby learns to talk?
3. Can anyone tell me some ways we have adapted to our environment?

8b. Teacher gives evidence to support generalizations: (and evaluations).

1. For example, people in Japan are an average of six inches taller today.
2. You can tell a mother's happy by the smile on her face.
3. One things rules do is tell us how to play games with our friends.

9. Alternate Inferences, Hypotheses, Predictions, Generalizations (AIHPG).

9a. Teacher asks children to give alternative hypotheses, predictions, generalizations, or inferences.

1. What else do you think it could be used for?
2. Could there be some other reason for the coffee cup being on the table?
3. Do you agree with that?
   (that = hypothesis, inference, generalization, or prediction)
4. What do you think about that?
   (that = hypothesis, inference, generalization, or prediction)
5. What else could it mean?

9b. Teacher gives alternative hypotheses, predictions, generalizations, or inferences.

1. You say it came from a fifth grade class. It could be the high school kids in the retarded program.
2. Maybe somebody just wanted to use it for candy instead.
3. It could also mean that his mother is working.

10. Evaluation and Value Judgment (EAVJ)

10a. Teacher asks children to evaluate (for some purpose; e.g., accuracy, significance, appropriateness, personal worth) the value of alternatives, units of data, predictions, etc.

1. What difference does that make anyway?
2. Which pail would be better for collecting the shells?
3. What would you do if you were in his shoes?
4. How do you feel about this school?
5. Does it make any difference to you?

6. What can we do to make our neighborhoods better?
7. Is that an acceptable thing to do here?
8. Is listening as important as speaking?

10b. Teacher makes evaluations (for some purpose; e.g., accuracy, significance, appropriateness, personal worth) the value of alternatives, units of data, predictions, etc.

1. Some of you have to do easier work than others.
2. You don't want it Andrew? Everyone else does.
3. I'm very glad you said that. That's just what I was waiting for.
4. I think John had the best idea.
5. That was the right answer.
6. It's nice to have a friend that likes you.
7. You mean your house has three bedrooms, not three rooms. (Ten of you can't live in three rooms).

CODED 15 MINUTE DISCUSSION

Following is a completely coded 15 minute social studies discussion. Only teacher behaviors are coded. A - sign following the coded category refers to a "teacher gives" behavior. A + sign following the coded category refers to a "teacher asks" behavior.

T: Let's take a look at page eight, the first picture at the top. This is Sue

OOUD- OOUD+ CCC+
and Paul./ Do you see them?/ Can anyone tell me how they are alike?/

S: They both have hair.

CCC+
T: Does anyone else have another idea?/

(S: How they are alike?

T: Yes.

S: They have a nose and mouth and two eyes.

T: Very good.)

S: They both have orange and they both have feet and legs.

OOUD+
T: Good. Can you see their feet and legs in the picture?/

ETSI+
Then how do you know they have feet and arms and legs?/

S: I can see the arms.

T: How do you know they have feet and legs though if you can't see them

ETSI+
in the picture?/

S: Well, everybody has feet and arms.

GBOI-
T: Alright, all people do./ Anything else you see that is alike
CCC+
with Paul and Sue?/ Susan.

S: Their ears are alike.

OOUD+
T: Do they both have hair?/

S: Yes.

CCC+
T: Is their hair the same color?/

S: Yes/No.

ETSI+
T: Some say yes, some say no. Who says no? John, why isn't their hair
ETSI+
the same?/ What do you see different?/

S: Because they're, they weren't born at the same time.

IFD+
T: Does that mean their hair couldn't be the same color?/ Look at the
CCC+ CCC+
picture John, is their hair the same?/ No. What's different about it?/
CCC+
Is Paul's hair the same color as Sue's hair?/

S: No.

CCC+
T: It's not?/

S: No.

OOUD+
T: What color is their hair?/ Susan.

S: Brown.

CCC+
T: They're both brown but what's different about it?/ Something's different, -
you're right.

S: I know, I know. His hair's short and her's is long.

GBOI-
T: They're both the same color but different lengths./ The boy has short

ETSG- ETSG-
hair./ The girl has long hair./ Take a look at the picture again. Does

OOUD+
each have a nose?/

S: Yes.

OOUD+
T: How many noses does each one have?/

S: One.

OOUD+
T: Do they each have eyes?/

S: Yes.

OOUD+
T: How many eyes do they have?/

S: Two.

OOUD+
T: Do they each have a chin?/

S: Yes.

OOUD+
T: Do each of you have a chin?/

S: Yes. (one no).

OOUD- OOUD+
T: Sue, you don't have a chin? Yes you do have a chin./ Where is your chin?/

OOUD+ OOUD+
Show me that you know where your chin is./ Good. Do they all have ears?/

S: Yes.

T: Yes they have ears. Is their hair different? John said it was different

CCC+
in the length. Is the color different?/

S: No.

T: Let's look at the bottom of the page now and look at the children down there.

OOUD- OOUD+ CCC+
That's Cathy and Harry./ Look at Cathy and Harry./ Do they look alike?/

S: Yes/No.

CCC+
T: Do you know something that's alike about them?/

S: No.....

S: I do. Cathy's Bigger and Harry's little.

OOUD-
T: Is that alike?/

S: No.

CCC+
T: What's alike about them?/ John.

S: Alike about them?

T: Look at the picture and see if you can tell me something that's alike.

CCC+
Something they have that's the same./ Billy.

S: They have hair.

CCC+
T: They each have hair. Something else./ Billy.

S: They have different clothes.

T: Is that the same? We're talking about same things right now. We'll

OOUD-
get to different things in a minute./

S: They both have the same eyes.

T: They both have eyes.

S: They're both colored.

OOUD-
T: They both have dark skin./ They're both colored.

S: They've both got nose and mouth.

OOUD+
T: Now look at the top picture and look at the bottom picture./ How are the

CCC+
children in the top picture the same as the children in the bottom picture?/

S: They both have hair.

S: They both have the same kind of ears.

T: They both have ears.

S: The girls have hands. The girls have shoes.

S: I know. All four of them have eyes, nose, mouth and ears.

EAVJ-
T: Very good. You've been studying the pictures, haven't you?/

CCC+
Is their hair different?/ Is Cathy's and Harry's hair different from

CCC+
Sue's and Paul's?/

S: Yes.

ETSI
T: How is it different?/

S: Their hair's colored.

OOUD+
T: What do you mean, their hair's colored?/ Don't they still have hair? What

OOUD+
color is their hair?/

S: Black.

OOUD-
T: And what color's their hair?/

S: Brown.

OOUD+
T: What did you mean, the hair was colored?/

S: It's a different color.

T: Oh, it's a different color! Is there anything else different about

CCC+
their hair?/

S: Her's is in 'whatever they're called'...

OOUD-
T: Pig-tails./

S: Pig-tails and hers is straight.

CCC+
T: Look at the color of their skin. Is it different?/

S: Yes.

ETSI
T: How is it different?/

S: They're not the same color.

OOUD+

T: What color are Harry and Cathy? What color is their skin?/

S: Dark skin.

OOUD+

T: They have dark skin. What color is Sue and Paul?/

S: White.

CCC+

T: They have white skin. What makes them alike?/

S: They both have hair and they both have noses and they both have eyes and mouth.

GBOI- CCC+

T: They're people, aren't they?/ What makes them different?/

S: She's littler than...

T: Size.

S: Their clothes aren't the same.

T: Yes, their clothes are different.

S: One's got straight hair and one doesn't.

T: Let's talk about people that we know. Leave the book and talk about

OOUD+

your friends, for instance. Can you describe a friend to me?/

S: What does that mean?

OOUD-

T: That means, tell me about him, what he looks like, what he's like./

S: Well, he steals...he used to, not any more because Peter was there to tell him and he likes high school girls.

OOUD+

T: How old is, who's your friend?/

S: His name is Johnny Jones and he's seven years old and he goes to this school..

OOUD+

T: Is that all you can tell me about your friend?/

S: And...

T: What do you like about your friend? What's the part that makes him
EAVJ+
your friend?/

S: Well, there's nobody else that likes me in the neighborhood. (Giggle, giggle).

OOUD+
T: Do you have a friend (to another student)? Tell me about your friend./

S: She's nice and she let's me borrow her books.

EAVJ-
T: That is a nice friend!/ Do you have a friend, Janey? Tell us about
OOUD+
your friend. What is your friend like?/

S: She's good and she likes me and...

EAVJ-
T: That's important, isn't it? That your friend likes you. John, how
EAVJ+
do you feel when you're with your friend?/

S: I feel nice.

ETSG+
T: Why do you feel nice?/

S: He walks around with me sometimes and goes to the store with me sometimes.

EAVJ-
T: It makes you feel good to have someone that likes you, doesn't it?/

S: Yes.

EAVJ+
T: Do you pick your friends because of the way they look?/

S: No ...my sister looks good...

S: I know, I know, I know...

EAVJ+
T: Do you like her because she looks good?/

S: Yes.

ETSG+
T: Do you like her for other reasons?/

T: What other reasons? Why do you like her? Just because she looks good? Do you like something else about her that you can't see? You think about

ETSG+

that. Why do you like your friend?/

S: Well, she's nice and she's very nice to me and she gives me a lot of work and that's my favorite.

EAVJ+

T: John, do you have a friend that you're glad to be with?/

S: Billy.

ETSG+

T: Why are you glad to be with Billy? How does he make you feel?/

S: How does he make me feel?

T: Do you feel different when you're with him? Do you understand what I'm

OOUD-

saying? How do you feel when you're with Billy?/

S: Nice.

ETSG+

T: You feel nice. Why?/

S: Why I feel nice?

S: No.

OOUD-

T: You dont' know how you feel?/

S: I don't even know what you mean.

EAVJ-

T: Are you happy when you're with Billy?/

S: Yes.

EAVJ-

T: OK. Then you're glad he's your friend, aren't you?/

S: Yes.

EAVJ+

T: Do you think Billy likes you?/

S: No.

EAVJ-
T: Billy, do you like John?/

S: Yes.

EAVJ-
T: He likes you./

S: Not when he pushes me in the bushes.

T: Well that wouldn't be...

(Group laughter)

EAVJ+
T: Sue, how do you feel when you're with your friend?/

S: Happy.

EAVJ-
T: Happy, good. It's nice to have friends, isn't it?/

S: Last night she let me borrow her book and after school she's going to let me borrow it again.

T: Let's pretend we know this boy and his name is Michael and he's six years old. We don't have any idea what he looks like. Who'd like to pretend that you've seen him and describe him to us? Janey, describe Michael
HAP+
to us. We don't know what he looks like./

S: He has short hair, blond hair. He's a nice boy.

ETSHAP+
T: What do you mean by nice?/

S: He's friendly.

AIHPG+
T: Alright, Can you tell us something else?/ John, can you tell us
HAP+
something about this boy Michael? We're just pretending that we know him./

S: I was going to say the same thing that she said.

T: Just keep thinking. Maybe you'll come up with a new idea. Billy, do you
AIHPG+
have something else you can add?/ Susan. Tell us something about this
HAP+
boy Michael that we're just pretending we know./

S: He's got a hat on his head?

T: I don't know. We're just making him up. He can be anything you want him
to be. So far we know he's got short hair that's blond, he's a nice boy,
OOUD- AIHPG+
he's friendly, and he's got an orange shirt./ Is there anything else?/

S: About Michael?

T: Yes. What about the parts that we can't see, the parts that are inside
AIHPG+
of him...the things that make him what he is./

S: His heart.

S: His liver.

HAP+ HAP+
T: What is he like?/ What's it like to know Michael?/

S: He's got brown shoes.

T: Can we see his shoes? That's not what we were talking about. We're
ETSHAP-
talking about the things that we can't see on him./ The things that
ETSHAP-
you feel when you're with him./

S: You can't see his lungs.

HAP+
T: What's he really like?/

S: You mean is he friendly.

ETSHAP-
T: That's what I mean./

S: Well, he shares his toys and stuff.

EAVJ-
T: Oh how nice! He sounds like a nice friend, doesn't he?/

S: And he takes me to his store, and he lees me to to Sunday School with him.

T: I'm going to ask you one more question and we're going to stop. Do you
GBOI+
think that people are more alike or different?/

S: Different...

S: I think they're more alike...

GBOI-
T: Are they more alike just to look at them or are they more different?/

S: They're more different...

EAVJ-
T: To look at?/

S: I mean, more alike.

ETSG+
T: Why?/

S: Because they both have eyes and a nose and a mouth and arms and feet and hands and legs and eyes...

T: There are so many things that make them alike and some things that make
GBOI-
them different./

S: The color of their eyes.

APPENDIX G

PERMISSION TO CONDUCT RESEARCH

HE SCHOOL BOARD OF BROWARD COUNTY, FLORIDA

Benjamin C. Willis
Superintendent of Schools
H. Don Moore, Chairman
Dania
Lyle E. Anderson, Vice Chairman
Plantation
Milton Brantferger
Hollywood
Robert C. Fuller
Pompano Beach
Laura Jones
Fort Lauderdale

June 23, 1971

Mrs. Marlene Mitchell
Nova University
3500 S. W. 70th Avenue
Fort Lauderdale, Florida

Dear Mrs. Mitchell:

I have discussed your proposed research with Mr. James Rogers, Social Studies Director, and with Dr. Harry F. McComb, Associate Superintendent for Curriculum and Teaching.

You may proceed to carry on your project with the elementary teachers involved in the Social Studies Workshops at Village, Mirror Lake and Tropical Elementary Schools.

It is understood that this research project will involve only the elementary teachers in the workshops, and will be strictly voluntary so far as the teachers are concerned.

All of your plans should be cleared with Mr. Rogers.

Sincerely,

Wilbur H. Marshall, Director
Instruction and Curriculum Development

WHM/se

cc J. Rogers
Dr. McComb

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APPENDIX H

CORRELATIONS OF ITEMS, TEST(x)-RETEST(x')

APPENDIX H

CORRELATIONS OF ITEMS, TEST(x)-RETEST(x')

(N = 23)

Item #	rxx'	Item #	rxx'
1.	.7464	31	.7245
2	.9240	32	.8693
3	.8370	33	.7563
4	.8056	34	.8055
5	.7594	35	.9235
6	.8140	36	.9057
7	.9336	37	.9034
8	.7847	38	.8485
9	.6954	39	.8799
10	.8214	40	.8997
11	.6166	41	.9723
12	.5685	42	.7019
13	.6690	43	.9382
14	.7758	44	.9334
15	.5160	45	.9284
16	.7254	46	.9254
17	.6981	47	.9535
18	.8918	48	.7168
19	.8588	49	.6880
20	.6209	50	.6182
21	.9320	51	.8915
22	.8357	52	.9603
23	.8815	53	.8837
24	.8909	54	.7354
25	.9236	55	.9470
26	.7164	56	.8771
27	.8050	57	.8940
28	.6549	58	.9312
29	.9741	59	.8438
30	.7580	60	.8085

APPENDIX I

COMMUNALITIES (h^2) OF 10 BEHAVIORS FOR NB_p ITEMS

APPENDIX I

COMMUNALITIES (h^2) OF 10 BEHAVIORS FOR NB_p ITEMS (N=103)

BEHAVIOR	NB_p h^2	R^2
OOUD	.732	.460
CCC	.708	.468
IFD	.814	.116
ETSI	.651	.363
HAP	.749	.509
ETSHAP	.622	.379
GBOI	.766	.317
ETSG	.703	.264
AIHPG	.611	.333
EAVJ	.736	.262

APPENDIX J

INTERCORRELATIONS OF SOCIAL STUDIES SURVEY ITEMS: GROUPED BY PARALLEL ITEMS

APPENDIX J

INTERCORRELATIONS OF SOCIAL STUDIES SURVEY ITEMS: GROUPED BY PARALLEL ITEMS

OOUD

	BI	Aact	NB	U	D
BI	1.0000	.0469	.1545	.2217	.0572
Aact		1.0000	.3070	-.0044	.1263
NB			1.0000	.0390	.0561
U				1.0000	.3315
D					1.0000

CCC

	BI	Aact	NB	U	D
BI	1.0000	.0323	.1329	.2049	-.0355
Aact		1.0000	-.0117	-.0950	-.0453
NB			1,0000	.3342	.1350
U				1.0000	.2019
D					1.0000

IFD

	BI	Aact	NB	U	D
BI	1.0000	.0620	-.0078	-.0503	-.1089
Aact		1.0000	-.0686	.2273	-.0529
NB			1.0000	.2403	-.0482
U				1.0000	.1569
D					1.0000

ETSI

	BI	Aact	NB	U	D
BI	1.0000	.0869	-.0582	.3696	-.1758
Aact		1.0000	.2799	.2087	.0293
NB			1.0000	-.0256	-.1073
U				1.0000	-.1160
D					1.0000

HAP

	BI	Aact	NB	U	D
BI	1.0000	.1065	.3017	.0550	.0821
Aact		1.0000	.2750	-.1967	-.1391
NB			1.0000	.1444	-.0505
U				1.0000	.0166
D					1.0000

ETSHAP

	BI	Aact	NB	U	D
BI	1.0000	.5683	-.2262	.4648	-.0477
Aact		1.0000	-.1300	.4470	.0349
NB			1.0000	-.1724	.0273
U				1.0000	-.0943
D					1.0000

GBOI

	BI	Aact	NB	U	D
BI	1.0000	.2189	.0986	-.0488	-.0105
Aact		1.0000	-.1428	.1849	.1285
NB			1.0000	.0999	.0171
U				1.0000	.0654
D					1.0000

ETSG

	BI	Aact	NB	U	D
BI	1.0000	.0459	.0435	.2521	.2088
Aact		1.0000	.3843	.3625	-.0342
NB			1.0000	.1749	.0680
U				1.0000	.0570
D					1.0000

AIHPG

	BI	Aact	NB	U	D
BI	1.0000	.2937	.2385	-.0189	-.1329
Aact		1.0000	.1218	-.2201	-.1395
NB			1.0000	-.0710	.0719
U				1.0000	.2121
D					1.0000

EAVJ

	BI	Aact	NB	U	D
BI	1.0000	-.2279	-.0137	-.0944	-.2622
Aact		1.0000	.1132	.1004	.1644
NB			1.0000	.0637	-.2424
U				1.0000	.1369
D					1.0000

APPENDIX K

INTERCORRELATIONS OF B AND D ITEMS

INTERCORRELATIONS OF B AND D ITEMS

	1	2	3	4	5	6	7	8	9	10
1	0.0538	-0.0492	-0.0559	-0.1814	-0.1487	-0.1242	-0.0459	-0.0343	-0.0398	-0.0586
2	-0.0810	-0.1217	-0.0944	-0.2518	-0.1677	-0.1592	-0.2260	-0.1374	-0.1601	-0.2098
3	-0.1328	0.0176	0.0699	0.0246	-0.2991	-0.2264	-0.1849	-0.1633	-0.2020	-0.0733
4	-0.2256	-0.0500	-0.1203	-0.0166	-0.0694	-0.2239	-0.2249	-0.2229	-0.1802	-0.1638
5	-0.2699	-0.0766	-0.2154	-0.1815	-0.2327	-0.2204	-0.0652	-0.0496	-0.2586	-0.0902
6	-0.1700	-0.0178	-0.2146	-0.1719	-0.0599	-0.2045	-0.1835	-0.2012	-0.1842	-0.1610
7	0.1582	-0.0172	0.0663	-0.0330	-0.1259	-0.1168	-0.0970	-0.0552	-0.0405	0.0534
8	-0.2814	-0.0310	-0.1612	-0.0658	-0.0136	-0.1561	0.0954	0.0054	-0.2202	-0.1676
9	-0.1807	-0.0812	-0.0906	-0.0963	-0.1108	-0.1636	-0.0694	-0.0145	0.0607	-0.0544
10	-0.2445	-0.0497	-0.0903	-0.1380	-0.0962	-0.0491	-0.1018	-0.1292	-0.0728	-0.1105